

200 Valley Street N.Y.

AMERICAN

# RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

**HENRY V. POOR, *Editor.***

ASSISTANT EDITORS:

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CHARLES T. JAMES, *For Manufactures and the Mechanic Arts.*  
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ESTABLISHED IN 1831.

NEW-YORK:  
PUBLISHED WEEKLY, BY  
**JOHN H. SCHULTZ & CO.**  
Room 12, Third Floor,  
**No. 136 Nassau Street.**

**FARMERS! ATTENTION!!**

**John Mayher & Co's**  
NEW AGRICULTURAL WAREHOUSE  
AND SEED STORE,

197 WATER STREET, NEW YORK.

Where they have for Sale, the largest and most complete assortment of Farming Implements, ever offered for sale in this city—all of which they will sell 10 per cent. Cheaper than the same kind of Goods can be bought at any other house in the city. Our Goods are all Warranted to give satisfaction.

FARMERS wanting to purchase, will please call and examine our Stock before buying elsewhere.

Among our assortment may be found the Celebrated Highest Premium Eagle Ploughs together with all the most approved Ploughs now in use.

Also,—Horse Powers, Threshing Machines, Fan Mills, Corn Shellers, Straw Cutters, Corn Mills, Seed Sowers, Churns, Ox Yokes, Ox Scrapers, Hay Rakes, Horse Rakes, Patent Chain Pump (that never freezes nor rusts), and other Pumps; in fact we have everything for Farming Purposes—together with Guano, Bone Dust and other Fertilizers.

JOHN MAYHER & CO.,  
197 Water st., N. Y.

February 9, 1850.

N.B.—J. M. & Co. also continue their Old Stand, at 195 Front street, near Fulton Market.

**STABILITY—SECURITY—PERPETUITY.**  
**Mutual Life Insurance Co. of**  
**New York.**

No. 35 WALL STREET.

**A MILLION OF DOLLARS**

Securely invested in Bonds and Mortgages on real estate in this city and Brooklyn, and stocks of the State and City of New York and United States Government.

This fund is rapidly increasing, by a widely extended and prosperous business.

The company declared a dividend of profits of fifty-two per cent. on all existing policies on the 31st of January, 1848.

*All the Profits are Divided Among the Insured.*

The premiums are payable in Cash annually, semi-annually, or quarterly, interest being added on the deferred payments.

The cash principle adopted by this company secures to the parties for whose benefit the insurances are effected, the whole of the advantages, without subjecting them to the heavy drawback of accumulated premium notes.

Persons may effect insurance on their own lives and the lives of others.

A married woman can insure the life of her husband, the benefits of which are secured by law for the exclusive use of herself or children.

Clergymen and all others dependent upon salaries or their daily earnings are specially invited to avail themselves of a resource whereby their surviving families may be secured from the evils of penury.

Pamphlets explanatory of the principles of Mutual Life Insurance, and illustrating its advantages, with forms of application, may be obtained at the office of the company, 35 Wall street, or of any of its agents.

**TRUSTEES.**

Jos. B. Collins,	David C. Colden,
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Gouv. M. Wilkins,	James Chambers,
John V. L. Pruyn,	Joseph Tuckerman,
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Charles Ely,	Wm. J. Banker,
John C. Cruger,	Eugene Dutilh,
Walter Joy,	Francis S. Lathrop,
Alfred Pell,	John C. Thatcher.

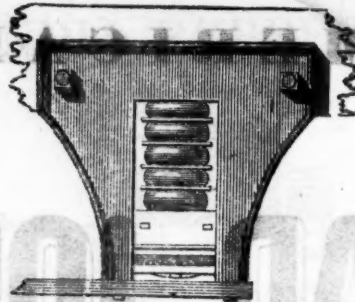
JOSEPH B. COLLINS, President.  
ISAAC ABBATT, Secretary. 3m9

**Railroad Instruments.**

**THEODOLITES, TRANSIT COMPASSES,**  
and Levels, with Fraunhoffer's Munich Glasses, Surveyor's Compasses, Chains, Drawing Instruments, Barometers, etc., all of the best quality and workmanship, for sale at unusually low prices, by

E. & G. W. BLUNT,  
No. 179 Water St., cor. Burling Slip.  
New York, May 19, 1849.

**FULLER'S PATENT  
INDIA RUBBER SPRING.**



THESE SPRINGS ARE THE CHEAPEST, the lightest and most durable of any yet known. They are easily applied to new or old cars, and there is small possibility of any accident occurring to them. Other parties through Mr. Ray set up claims to an India Rubber Spring which, though the same in principle, is very inferior in its working and durability. Actions are in progress for an Infringement on Fuller's Patent against parties using that Spring.

The superiority of Fuller's Spring over that claimed by Mr. Ray is fully established and has frequently been testified to. The following are from gentlemen who have had much experience with both Springs.

"It will afford me pleasure to recommend your springs to the companies in this region, in preference to Ray's which I am confident are inferior in mechanical arrangement to yours."  
JOHN M'RAE,  
Engineer S. Carolina R. R., Charleston.

"I do not hesitate to allow you to say that I concur in Mr. M'RAE's opinion that Ray's springs are inferior in mechanical arrangement to Fuller's. I repeatedly expressed that opinion long before Mr. M'RAE had seen your springs (as I believe) and entertain it still."  
WM. PARKER,  
Gen'l Supt. of Baltimore and Ohio R. R.

Office of Supt' Norwich & Worcester R.R. Co.,  
December 26, 1849.

"I most fully concur in the opinion of Jno. McRae, Engineer of S. Carolina Railroad, that 'Rays Springs are inferior to Fuller's Springs,' and shall with pleasure recommend them to all Railroad Companies for adoption. I have used both springs on this road and have no hesitation in saying that I should in all cases prefer Fuller's Spring."

SAM'L H. P. LEE, JR.,  
Supt' and Engineer.

Office B. & P. R. R. Co.,  
Boston, 20th December, 1849.

"This company have cars fitted up with both Ray's and Fuller's 'Metallic India Rubber Springs,' and I do not hesitate to say that Fuller's arrangement is very much superior to Ray's."  
W. RAYMOND LEE, Supt.

The following result has been obtained by experiment upon one railroad.  
A set of Trucks fitted  
with Steel Springs cost \$190.77 and weigh 2355 lbs.  
The same with Fuller's  
Springs, . . . 131.71 " 1911 lbs.

Difference, . . . \$59.06 " 444 lbs.  
Not only is there an advantage in the cost, but owing to the great reduction in weight, the car can be made lighter throughout, and so an enormous saving in weight may be effected in a Train.

G. M. KNEVITT, 38 Broadway, N. Y.,  
General Agent for the U. S.

The Springs can also be had of  
JAMES LEE & CO., 18 India Wharf, Boston, &  
JAS. THORNLEY, 110 Chestnut St., Philad.  
January 2, 1850.

**American Cast Steel.**

**THE ADIRONDAC STEEL MANUFACTURING CO.** is now producing, from American iron, at their works at Jersey City, N.J., Cast Steel of extraordinary quality, and is prepared to supply orders for the same at prices below that of the imported article of like quality. Consumers will find it to their interest to give this a trial. Orders for all sizes of hammered cast steel, directed as above, will meet with prompt attention.  
May 28, 1849.

**NOTICE TO**

**Superintendents of Railroads.**

**TYLER'S PATENT SAFETY SWITCH.**—The undersigned would respectfully call their attention to his Patent Safety Switch, which from long trial and late severe tests has proved itself perfectly reliable for the purpose for which it was intended. It is designed to prevent the train from running off when the switch is set to the wrong track by design or accident. The single rail or gate switch is established as the best and safest switch for the ordinary purpose of shifting cars from one track to another, but it is liable to the serious evil of having one track open or broken when connected with the other. My improvement entirely removes this evil, and while it accomplishes this important office, leaves the switch in its original simplicity and perfection of a plain unbroken rail, connecting one track with the other ready for use.

The following decision of the Commissioner of Patents is respectfully submitted to Railroad Engineers, Superintendents, and all others interested in the subject.  
P. B. TYLER.

(COPY.)

UNITED STATES PATENT OFFICE,  
Washington City, D.C., April 28th, 1846.

SIR: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3d Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision. The testimony in the case is now open to the inspection of those concerned.

Yours respectfully,  
EDMUND BURKE,  
Commissioner of Patents.

To Philos B. Tyler.

Any further information may be obtained by addressing P. B. TYLER, Springfield, Mass., or JOHN PENOLETON, Agent, 149 Hudson St., New York.

**PHILADELPHIA CAR MANUFACTORY,**

CORNER SCHUYLKILL 2D AND HAMILTON STS.,  
SPRING GARDEN, PHILADELPHIA CO., PA.  
**Kimball & Gorton,**

Having recently constructed the above works, are prepared to construct at short notice all kinds of

**RAILROAD CARS, Viz:**

Passenger Cars of all classes—Open and Covered Freight and Express Cars—Coal Cars—Hand Cars & Trucks of all descriptions.

They are also prepared to furnish Chilled Wheels of any pattern. Car Wheels & Axles fitted and furnished. Snow Ploughs and Tenders made to order. Steel and other Springs always on hand.

All orders will be filled at short notice, and upon as good terms as at any other establishment in the country. Omnibuses from the Exchange run within one square of the manufactory every 10 minutes during the day.  
Philadelphia, June 16, 1849. 1y25

**C. W. Bentley & Co.,**

IRON Founders, Portable Steam Engine Builders and Boiler Makers, Corner Front and Plowman Sts., near Baltimore St. Bridge,  
BALTIMORE, MARYLAND.

Their Engines are simple in their construction, compact and durable; they require no brick work in setting them, and occupy but a small space (a six horse power engine and boiler, standing on a cast iron plate of three by six feet.)

They also manufacture Major W. P. Williamson's new oscillating Engine; a superior article, combining cheapness and simplicity (one of which may be seen in operation at their shop.) Both of these engines are adapted to any purpose, where power is required, and may be made of any capacity; and for economy in use of fuel are unsurpassed.

All kinds of machinery made to order. Steam Generators, Force Pumps, Wrought Iron Pipes and Fittings for Steam, Water, Gas, etc., constantly on hand,  
Baltimore, June 6, 1849.

**CORROSIVE SUBLIMATE.**

THIS article now extensively used for the preservation of timber, is manufactured and for sale by **POWERS & WEIGHTMAN**, manufacturing Chemists, Philadelphia.  
Jan. 20, 1849.

**Coal.**

**CUMBERLAND SEMI-BITUMINOUS COAL**  
superior quality for Locomotives, for sale by  
H. B. TEBBETTS,  
No. 40 Wall St., New York.  
May 12, 1849. 1m19



**IRON BRIDGES, BRIDGE & ROOF BOLTS,**  
etc. STARKS & PRUYN, of Albany, New York,  
having at great expense established a manufactory with  
every facility of Machinery for Manufacturing Iron  
Bridges, Bridge and Roof Bolts, together with all kinds  
of the larger sizes of Screw Bolts, Iron Railings, Steam  
Boilers, and every description of Wrought Iron Work,  
are prepared to furnish to order, on the shortest notice,  
any of the above branches, of the very best of American  
Refined Iron, and at the lowest rates.

During the past year, S. & P. have furnished several  
Iron Bridges for the Erie Canal, Albany Basin, etc.  
—and a large amount of Railroad Bridge Bolts, all of  
which have given the most perfect satisfaction.

They are permitted to refer to the following gentlemen:

Charles Cook,	Canal Commissioners
Nelson J. Beach,	of the
Jacob Hinds,	State of New York.
Willard Smith, Esq.,	Engineer of the Bridges for
Messrs. Stone & Harris,	the Albany Basin.
Mr. Wm. Howe,	Railroad Bridge Builders,
Mr. S. Whipple,	Springfield, Mass.
	Engineer & Bridge Builder,
	Utica, N. Y.

January 1, 1849.

**TO RAILROAD COMPANIES AND BUILD-  
ERS OF MARINE AND LOCOMOTIVE  
ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 4 ft in calibre and 2 to 12 feet long,  
capable of sustaining pressure from 400 to 2500 lbs.  
per square inch, with Stop Cocks, T. L., and  
other fixtures to suit, fitting together, with screw  
joints, suitable for STEAM, WATER, GAS, and for  
LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**To Railroad Companies, etc.**



The undersigned has at last suc-  
ceeded in constructing and securing  
by letters patent, a Spring Pad-lock  
which is secure, and cannot be  
knocked open with a stick, like oth-  
er spring locks, and therefore particu-  
larly useful for locking Cars, and  
Switches, etc.

Companies that are in want of a  
good Pad-lock, can have open samples sent them that  
they may examine and judge for themselves, by send-  
ing their address to

C. LIEBRICH,  
46 South 8th St., Philadelphia.

November 3, 1849.

**Mattewan Machine Works.**

THE Mattewan Company have added to their Ma-  
chine Works an extensive LOCOMOTIVE ENGINE  
department, and are prepared to execute orders for Lo-  
comotive Engines of every size and pattern—also Tenders,  
Wheels, Axles, and other railroad machinery, to  
which they ask the attention of those who wish such  
articles, before they purchase elsewhere.

**STATIONARY ENGINES, BOILERS, ETC.,**  
Of any required size or pattern, arranged for driving  
Cotton, Woollen, or other Mills, can be had on favorable  
terms, and at short notice.

**COTTON AND WOOLLEN MACHINERY,**  
Of every description, embodying all the modern im-  
provements, second in quality to none in this or any  
other country, made to order.

**MILL GEARING,**

Of every description, may be had at short notice, as  
this company has probably the most extensive assort-  
ment of patterns in this line, in any section of the  
country, and are constantly adding to them.

**TOOLS.**

Turning Lathes, Slabbing, Planing, Cutting and  
Drilling Machines, of the most approved patterns, to-  
gether with all other tools required in machine shops,  
may be had at the Mattewan Company's Shops, Fish-  
kill Landing, or at 66 Beaver street, New York.  
**WM. B. LEONARD, Agent.**

**HEAD QUARTERS FOR RUBBER GOODS.**



**The Union India Rubber Company,**

MANUFACTURERS AND DEALERS IN EVERY VARIETY OF

**GOODYEAR'S PATENT METALLIC RUBBER FABRICS,**

Which they offer on the most liberal terms at their Warehouse,

**NO. 19 NASSAU STREET, NEW YORK.**

Articles which this Company has the exclusive right to make comprise in part

Beds,	Overcoats,	Life Preservers,	Mail Bags,	Camp Blankets,
Pillows,	Leggins,	Boat Floats,	Breast Pumps,	Travelling Bags,
Cushions,	Syringes,	Souwesters,	Saddle Bags,	Wading Boots,
Caps,	Canteens,	Gun Cases,	Clothing of all kinds,	Horse Covers,
Tents,	Buoys,	Portable Boats,	Carriage Cloth, assor.	Piano Forte Covers,
Bottles,	Maps,	Horse Fenders,	Hospital Sheetting,	Railroad Gum,
Tubs,	Sheet Gum,	Water Tanks,	Mattress Covers,	Hose, all kinds,
Caps,	Tarpaulins,	Army Goods,	Bathing Caps,	Shower Baths,
Pants,	Life Jackets,	Navy Goods,	Baptismal Pants,	Chest Expanders.

Together with all new applications of the Patent Rubber, which with Boots and Shoes, Packing, Machine  
Belting, Suspenders, Gloves and Mittens, Tobacco Wallets, Balls, Baby Jumpers, Elastic Bands, etc., etc.,  
will be sold to the Trade at Factory prices.

\*. All orders for special articles to be manufactured, should be accompanied with full descriptions and draw-  
ings.

October 20, 1849.

**RAILROAD  
India-rubber Springs.**

If any Railroad Company or other party desires it,  
the NEW ENGLAND CAR COMPANY will furnish  
India-rubber Car Springs made in the form of washers,  
with metallic plates interposed between the layers, or  
in any other form in which they can be made; in all  
cases guaranteeing the right to use the same against  
any and all other pretended rights or claims whatsoever.

F. M. Ray, 98 Broadway, New York.  
E. CRANE, 99 State Street, Boston.  
1849.

**Brown's Old Established  
SCALE WARE HOUSE,**

NO. 234 WATER ST., NEW YORK.

THE Subscriber, Practical Manufacturer of Scales  
of every description, respectfully asks the atten-  
tion of Railroad Companies to his Improved Wrought  
Iron Railroad Track and Depot Scales which for  
strength, durability, accuracy, convenience in weigh-  
ing, and beauty of workmanship, are not surpassed by  
any others in this country.

He is aware that this is rather a bold assertion for  
him to make, yet he can say with confidence that they  
have but to be tried to give them precedence over all  
others.

Bank Scales made to order, and all Scales of  
his make Warranted in every particular.  
References given if required.

THE NEWCASTLE MANUFACTURING CO.  
continue to furnish at the Works, situated in the  
town of Newcastle, Del., Locomotive and other steam  
engines, Jack Screws, Wrought Iron Work and Brass  
and Iron Castings, of all kinds connected with Steam-  
boats, Railroads, etc.; Mill Gearing of every descrip-  
tion; Cast Wheels (chilled) of any pattern and size,  
with Axles fitted, also with wrought tires, Springs,  
Boxes and bolts for Cars; Driving and other wheels  
for Locomotives.

The works being on an extensive scale, all orders  
will be executed with promptness and despatch. Com-  
munications addressed to Mr. William H. Dobbs, Su-  
perintendent, will meet with immediate attention.

**ANDREW C. GRAY,**  
President of the Newcastle Manuf. Co.

**DEAN, PACKARD & MILLS,**

MANUFACTURERS OF ALL KINDS OF

**RAILROAD CARS,**

SUCH AS

PASSENGER, FREIGHT AND CRANK CARS,

— ALSO —

SNOW PLOUGHS AND ENGINE TENDERS

OF VARIOUS KINDS.

CAR WHEELS and AXLES fitted and furnished  
at short notice; also, STEEL SPRINGS  
of various kinds; and

**SHAFTING FOR FACTORIES.**

The above may be had at order at our Car Factory,

REUEL DEAN,  
ELIJAH PACKARD, } SPRINGFIELD, MASS.  
ISAAC MILLS, } 1748

**Iron Safes.**

FIRE and Thief-proof Iron Safes, for Merchants,  
Banks and Jewelers use. The subscriber manu-  
factures and has constantly on  
hand, a large assortment of Iron  
Safes, of the most approved con-  
struction, which he offers at much  
lower rates than any other manu-  
facturer. These Safes are made  
of the strongest materials, in the  
best manner, and warranted en-  
tirely fire proof and free from dampness. Western  
merchants and the public generally are invited to call  
and examine them at the store of E. Corning & Co.,  
sole agents, John Townsend, Esq., or at the manufac-  
tory.



Each safe furnished with a thief-detector lock, of the  
best construction.  
Other makers' Safes repaired, and new Keys and  
Locks furnished at the shortest notice.

**H. W. COVER,**  
cor. Steuben and Water sts, Albany  
August 24, 1848.



### NEW YORK IRON BRIDGE COMPANY.

The Bridges manufactured by this Company having been fully tested on different Railroads, by constant use for more than two years, and found to answer the full expectations of their most sanguine friends, are offered to the public with the utmost confidence as to their great utility over any other Bridge now known.

The plan of this Bridge is to use the iron so as to obtain its greatest longitudinal strength, and at the same time it is so arranged as to secure the combined principles of the Arch, Suspension and Triangle, all under such controlling power as causes each to act in the most perfect and secure manner, and at the same time impart its greatest strength to the whole work.

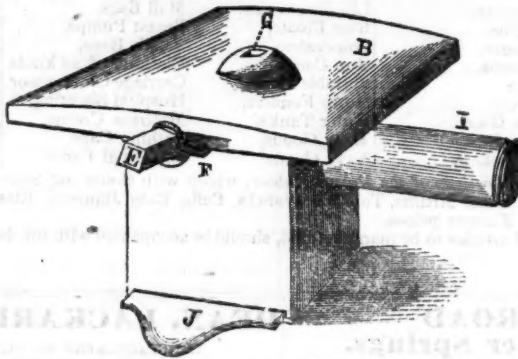
THE NEW YORK IRON BRIDGE COMPANY are prepared to furnish large quantities of Iron Bridging for Railroad or other purposes, at short notice, and at moderate prices.

Models, and pamphlets giving full descriptions of the above Bridge, with certificates based on actual trial from undoubted sources, will be found at the office of the Company, 39 Jauncey Court, Wall st., or of W. RIDER & BROTHERS, 19 Nassau Street, where terms of contract will be made known, and where orders are solicited.

August 29, 1849.

M. M. WHITE,  
Agent for the Company.

### E. Harris' Patent Rotary Blacksmith Tuyere.



LETTERS Patent were issued January 9, 1849, to E. HARRIS, of Springfield, for an Improved Rotary Blacksmith Tuyere. Since that time there have been some hundreds put in operation, giving satisfaction and full proof of superiority over all others.

This Tuyere is so arranged that by one movement it can be changed from the largest work to the smallest; at the same time the fire is changed in proportion, thereby making a great saving in coal. Words cannot convey the full merits of this Tuyere; nor is it deemed necessary to speak in disparagement of other Tuyeres, as every smith is capable of judging for himself, and will give merit where merit is due.

I will simply say that there has not been a single instance where I have had my Tuyere put in use but it has given full satisfaction, and is recommended by all who have used them, as being superior to any other ever introduced. I would invite all to give them a trial; and the names of those using them being given, I hope it may induce others to try them, they recommend themselves.

Western Railroad Shop,	Springfield, Mass.
"	Pittsfield, "
Connecticut val.	Springfield, "
"	N. Hampton, Conn.
Hartford	Hartford, Conn.
New Haven	New Haven, "
Norwich and Worcester,	Norwich, "
N. York and N. Haven,	New Haven, "
Saratoga and Whitehall,	Saratoga, N. Y.
Vermont Central,	"
Hudson and Berkshire,	Hudson, Mass.
L. Kingsley,	Canton, "

Hadley Falls Co. Ireland,	W. Springfield, Mass.
Sidney Patch,	Boston, "
Ames Manuf. Cor.,	Chickopee, "
American Machine w'ks,	Springfield, "
Dean, Packard & Mills	"
G. Frank Bradley,	N. Haven, Conn.
Andrew Baird,	"
Collis & Lawrence	"
Slate & Brown,	Windsor Locks, "
Gage,	Nashua, N. H.
Machine shop,	Manchester, "
Louis F. Lannay,	Baltimore, Md.
J. H. Baerddid,	179 Chambers st. N. Y.
J. Fanning	Rochester, "
G. W. Hunt	41 Gold st. "
Chamberlain & Waldo,	"
P. S. Burges, carriage maker,	"
Samuel Miller,	"
J. Leggett,	Steverson falls, "
J. E. Harris,	Hillsdale, "
John L. Graham,	Albany, "
David Dalsell,	South Egremont, Mass.
Roy & Wilcock,	Berlin, Conn.

Agents for the sale of Tuyeres:  
E. B. Stevens in New York and Connecticut.  
A. J. VanAllen has the Agency for the Western and Southern States, and is now travelling through those States. Any communication addressed to the patentee will receive prompt attention.

E. HARRIS, Patentee,  
Springfield, Mass.

November 23, 1849.

### Railroad Lanterns.

COPPER and Iron Lanterns for Railroad Engines, fitted with heavy silver plated Parabolic Reflectors of the most approved construction, and Solar Argand Lamps; manufactured by

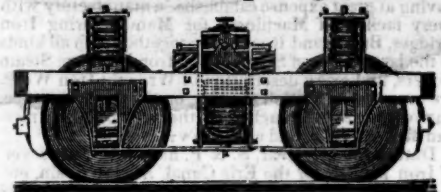
HENRY N. HOOPER & CO.,  
No. 24 Commercial St. Boston.  
August, 16, 1849. 6m33

### Gas Fixtures.

FIXTURES for Burning Gas for Lighting Public Buildings, Private Dwellings, Stores and Factories, manufactured by the subscriber in great variety. Orders by Mail, or left at the Factory on Causeway street, will be promptly attended to.

HENRY N. HOOPER & CO.  
Boston, March 23, 1850. 6m13

### F. M. Ray's Patent India-rubber Car Springs.



India-rubber Springs for Railroad Cars were first introduced into use, about two years since, by the inventor. The New England Car Company, now possesses the exclusive right to use, and apply them for this purpose in the United States. It is the only concern that has tested their value by actual experiment, and in all arguments in favor of them, drawn from experience of their use, are in those cases where they have been furnished by this company. It has furnished every spring in use upon the Boston and Worcester road, and, in fact, it has furnished all the springs ever used in this country, with one or two exceptions, where they have been furnished in violation of the rights of this company; and those using them have been legally proceeded against for their use, as will invariably be done in every case of such violation.

The Spring formed by alternate layers of India-rubber discs and metal plates, which Mr. Fuller claims to be his invention, was invented by Mr. Ray in 1844. In proof of which we give the deposition of Osgood Bradley, of the firm of Bradley & Rice, of Worcester, Mass., car manufacturers, and men of the highest respectability. In this deposition, in relation to the right of parties to use these springs, he says:

"I have known Mr. Ray since 1835. In the last of May or the commencement of June, 1844, he was at my establishment, making draft of car trucks. He staid there until about the first of July, and left and went to New York. Was gone some 8 or 10 days, and returned to Worcester. He then on his return said he had a spring that would put iron and steel springs into the shade. Said he would show it to me in a day or two. He showed it to me some two or three days afterwards. It was a block of wood with a hole in it. In the hole he had three pieces of India-rubber, with iron washers between them, such as are used under the nuts of cars. Those were put on to a spindle running through them, which worked in the hole. The model now exhibited is similar to the one shown him by Ray. After the model had been put into a vice, witness said that he might as well make a spring of putty. Ray then said that he meant to use a different kind of rubber, and referred to the use of Goodyear's Metallic Rubber, and that a good spring would grow out of it." There are many other depositions to the same effect.

The history of the invention of these springs, together with these depositions, proving the priority of the invention of Mr. Ray, will be furnished to all interested at their office in New York.

This company is not confined to any particular form in the manufacture of their springs. They have applied them in various ways, and they warrant all they sell.

The above cut represents precisely the manner in which the springs were applied to the cars on the Boston and Worcester road, of which Mr. Hale, President of this road speaks, and to which Mr. Kneivitt refers in his advertisement. Mr. Hale immediately corrected his mistake in the article quoted by Mr. Kneivitt, as will be seen by the following from his paper of June 8, 1848. He says:

INDIA-RUBBER SPRINGS FOR RAILROAD CARS.—"In our paper yesterday, we called attention to what promises to be a very useful invention, consisting of the application of a manufacture of India-rubber to the construction of springs for railroad cars. Our object was to aid in making known to the public, what appeared to us the valuable properties of the invention, as they had been exhibited on trial, on one of the passenger cars of the Boston and Worcester railroad. As to the origin of the invention we had no particular knowledge, but we had been informed that it was the same which had been introduced in England, and which had been subsequently patented in this country; and, we were led to suppose that the manufacturers who have so successfully applied this material, in the case to which we referred had become possessed of the right to use that patent. It will be seen from the following communication, addressed to us by a member of the company, by which the Worcester railroad was supplied with the article upon which our remarks were based, that we were in an error, and that the springs here introduced are an American invention, as well as an American manufacture. How far the English invention may differ from it we have had no opportunity of judging."



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HENRY V. POOR, Editor.

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### American Railroad Journal.

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Saturday, May 11, 1850.

#### Iron Ores.

ST. LAWRENCE DISTRICT, NEW YORK.

In the account previously given of the ores of this district, no mention was made of the *Redwood furnace*, a new stack which went into operation the last year, and made in two different blasts, both within six months, five hundred tons foundry iron, mostly No. 1. We have received a section of the furnace and an interesting account of its workings, and remarks relative to the ores of the neighborhood, from Mr. G. W. Crain, who was employed to put in the hearth and lining for the present blast.—These data, which appear to have been collected with much care and accuracy, we present below as we have received them.

The *Redwood furnace* is on the outlet of a small lake one and a half miles from the village of Redwood in the town of Alexandria, and eight miles from the river St. Lawrence. It was built in 1848 by Mr. S. T. Hooker of Sacketts Harbor, under the direction and management of Mr. L. Bones.—The stack is of sandstone, 33 feet at the base and 34 feet high, where it is 25 feet across, having vent

holes every four feet without ties or binders of any kind—yet it has kept its shape very well so far.\*

The blast is furnished by a wood blowing cylinder of six feet diameter, having four feet stroke, the wheel making seven revolutions a minute, yet so imperfect are the works that but twelve ounces pressure is all the gauge shows with two blow pipes of two and five eighths inch nozzle. The blast is in part regulated by a cylinder of wood, seven feet high and seven feet four inches diameter, having a floating head, the piston of which projects thro' the bottom and is attached to the weight box. The blast is heated by the gas similar to the Rossie furnace, and is carried in nine inch pipes down behind the lining in a recess of the wall, which is bricked up and filled with grout. The motive power is a breast wheel fourteen feet long and sixteen feet diameter.

The furnace was built to work ores found in its immediate neighborhood. The principal ore (Dewey bed) is three fourths of a mile from and belongs to the furnace. This is specular ore, yielding about 42 per ct. of the best kind of iron, but works very hard in the furnace. About a thousand tons of this was mined last year at an expense of about one dollar and a half a ton, when the bed was considered exhausted, but it is thought by many that large quantities of ore could be had by drifting into the hill at an expense of not more than two dollars per ton. A vein of ore half a mile from the furnace has been followed in forty or fifty feet, where it shows a thickness of twenty inches. A few tons of very good ore were taken from this place, but the expense of procuring it was so great the vein was abandoned. It is at the foot of a ledge of sandstone, and has an inclination of about 25° for the first 20 feet, then increases to about 60°. Besides

\* Mr. Crain in a former communication and in his section represents the stack to be 33 feet high, 7 ft. 8 inches across the boshes, and 2 inches greater diameter 2 feet higher up. Diameter at tunnel head 31 inches: the iron cylinder or rather frustrum of a cone, which is let in at the top swelling to 34 inches at its base two feet down. Under and outside of this the gases pass to the heating oven.—The top of the boshes are nine feet above the bottom of the hearth; this is five and a half feet high, 32 inches across the top, 22 at the tweres and 21½ at the bottom. The tweres are 22 inches up; boshes slope at top 46°, then 56°, and then 60°. The in walls are on a curve of 80 feet radius, the centre of which is on the same level with the greatest diameter of the furnace.

these, another bed has been opened two miles from the furnace, which has produced some of the best ore of the country. This is in compact fieldspar and quartz. These beds furnished the ores used by the furnace the last year for two short and very indifferent blasts, and may be said to cost two dollars a ton at the furnace bank.

Charcoal can be had in any quantity at five cents the bushel there being a large tract of well timbered land lying around the furnace.

The furnace made five hundred tons of iron last year in two blasts of twenty two weeks in all, the cost of which I cannot even guess, there was so much alteration and repair.

Last fall the property went into the hands of Mr. S. Buckley of Watertown, who had the furnace repaired, and bought eight or nine hundred tons of ore at the Kearney, Keene and Stirling beds, of which about four hundred tons were Kearney ore, all of them costing two dollars a ton at the bed, and two dollars for hauling (distance from 21 to 23 miles). He also bought two hundred tons of Stirling ore at a cost of eighty cents at the bed and one dollar for hauling (distance 11 miles). These with the two hundred he had on hand costing two dollars a ton, will use up the eighty thousand bushels coal at the furnace when the blast commenced.

The furnace has been running near two months under the care of Mr. D. Christian, and works as freely as was ever known by any of the firemen.—The following is a record of the working of the furnace for the first seven weeks, the mercury in the pressure gauge standing the last four weeks at three quarters of an inch with 2½ inch blow pipes.

*Journal of the Redwood Furnace; blast put on April 9th, 1850.*

	Lbs. ore.	Bush. coal.	Iron.
1st week.....	99,225	3,650	48,988
2d “.....	101,455	4,435	66,311
3d “.....	150,250	4,558	80,000
4th “.....	162,460	4,650	87,560
5th “.....	169,520	4,920	89,110
6th “.....	176,420	5,200	90,600
7th “.....	181,205	5,250	98,000
	1,040,535	32,664	560,569

By the above it will be seen that for the first seven weeks, which is not a fair test of the blast, 116 bushels of coal made a ton of iron; but if we look to the seventh week it will be seen that only 107 bushels are used, and this is quite one third made of hemlock.

The cost of working the furnace is as follows:

Founder, at \$2 50 per day.....	\$2 50
Two firemen, 1 50 each.....	3 00
Two topmen, 75 cts. each.....	1 50
One gutterman.....	1 00
One coal baker.....	1 00
One bank hand.....	0 75
One man with stamping mill.....	0 75
" " horse and cart.....	1 25
	\$11 75

So that when the furnace makes five tons a day the labor will be \$2 35, which I will call \$2 50 to be within bounds.

Cost of a ton of iron:\*

1½ tons of ore, at \$4.....	\$6
1 " " 2.....	1
	—\$7 00
116 bushels charcoal, at 5 cts.....	5 80
Labor 2 50, flux 20.....	2 70
Cartage to Alexandria bay.....	1 00
	\$16 50

From Alexandria bay to any port on the lakes, iron is furnished for three dollars a ton, which includes commission, and an advance of twenty dollars a ton is made when delivered on the wharf, the manufacturer being allowed to bargain for its sale. Of the iron made at this furnace last year all was sold for thirty dollars except one small lot which brought twenty six dollars.

It is said by many that accounts of the stock used in a furnace are underrated, which I know is the case in some works. In one instance at a large establishment six and a half cents per bushel is paid for charcoal, when contracts at five cents have been offered on condition the coal were measured in the ten bushel box instead of the furnace "bushel basket," as it is called. The baskets at the Redwood furnace correspond very nearly with the legal measure of 2568 inches. The last running of the furnace at the close of the above account was at the rate of 52½ tons with 5200 bushels of charcoal.

Mr. Crain also sends some further accounts of the *Caledonia furnace* owned by Messrs. Skinner & Blish, and run the last year by Mr. D. Christian, who now has charge of the Redwood. It is two miles from the village of Oxbow in the town of Antwerp, about five miles from the Kearney ore bed, and a mile farther from the Keene and Sterling beds. It is a small stack with an eight feet lining, and hearth two feet across. The furnace and fixtures are nearly new, of substantial character, and the water power good. The shape of the stack is much like the Redwood, but the ore used yielded only about 43 per cent.

The following is the footing of the books for the blast of last summer and fall, since which time the furnace has been idle. The coal books show a purchase of 89,000 bushels of coal at four cents a bushel.....\$3,560 00  
700 tons Stirling ore, at \$2..... 1,400 00  
370 " " 2 25..... 832 50  
Hauling same at 75 cts. a ton..... 802 50  
589 tons Kearney ore, at \$2 25..... 1,305 00  
Hauling same at 62½ cts..... 362 50  
Paid for hauling 705 tons of iron to Alexandria bay, at \$2..... 1,410 00  
Paid for labor to run furnace 4½ mos..... 1,325 00  
" " flux, say..... 75 00

\$11,072 50

To this should be added the other items of ex-

\* In this estimate no account is made of superintendence, repairs and interest on capital, which are usually rated at from \$2 to \$3 per ton of iron.

J. T. H.

pense not included, as repairs, which in this instance were \$250, clerks' hire, six months' interest on \$10,000, the value of the works, and interest also on the expenditures, and the cost of superintendence.

The iron is rated to be worth at the least \$24 at Alexandria bay.

This furnace is well located for small expense of transportation of ore.

Rossie furnace is making from 10 to 12 tons a day. Stirlingville about 3½—cold blast iron. The Stirling furnace at Antwerp is idle, but will go into blast in June. The Carthage furnaces are abandoned.

Some very good beds of magnetic ore have lately been opened in the southeast part of St. Lawrence county.

Mr. Crain states that the reason why the specular ores are used for foundry iron is that in the western markets this is worth five to eight dollars a ton more than forge pig. The greatest trouble in working the ores is to keep the furnaces running hot enough to make good foundry iron.

A communication has also been received from Cheshire, Berkshire county, Mass., in relation to the furnace it is proposed to build there, to run the ores from the Brown and King beds, which are described in the articles on the hematites of Massachusetts.

The letter is from Mr. J. N. Richmond, who has been engaged in opening and proving these beds. He states that—"Operations in the ore beds subsequent to your examinations, fully meet your former expectations and predictions. We have raised about 1500 tons of ore from the Brown mine in extending the drifts and lowering shafts. The shaft now measures over 70 feet, and the drifts east and west over 80 feet, and the ore continues solid in both.

A young man by the name of Peitce has purchased all the property and commenced operations—has engaged under the charter and has opened his books for stock."

I have already expressed in the Journal the high opinion I entertained of the ore of this locality and the great advantages it possessed for the economical production of the best qualities of iron. But in the present condition and prospects of the iron business throughout the country, there is little encouragement for commencing new operations, even in the most favored localities. H.

#### CONSTRUCTION OF THE GRIMSBY DOCKS.

In accordance with the resolution of a special meeting of members, the session of the institution commenced on Tuesday evening, instead of, as heretofore, in the middle of January. This is a great improvement, as it assimilates the routine of this useful society to that of other scientific bodies. It will also prove very convenient to country members, give a greater number of meetings, and enable the session to terminate brilliantly with the President's conversation.

The paper read was a "Description of the Cofferdam at the Grimsby Docks," by Mr. Charles Neate, Assoc. Inst. C. E. It commenced by briefly noticing the importance of preliminary structures in all works of hydraulic engineering, and the difficulties generally attending their execution. The position of Grimsby, on the south shore of the Humber, was then described; its proximity to the sea, the natural shelter afforded by the opposite shore of Spurn Head, and the various advantages it presented for the construction of extensive docks.

A general description followed of the enclosure made for the purpose of the dock-works, which comprised an area of 138 acres, and projected five-eighths of a mile beyond the margin of the high-water line of the shore. It was explained, that the

flatness of the coast necessitated this great projection, as it was requisite to found the new entrance locks in the low-water channel of the river, in order to secure, at all times, a sufficient depth of water for large vessels. These conditions regulated the position of the coffer dam, which stood in a very exposed situation, and was entirely self-supported. Its principal features were stated to be its extent, and the form of its construction. The length of the coffer dam was 1500 feet, supporting, at high water, a head of water of 25 feet; whilst the excavation behind it was carried to 11 feet below low water.—The form of the dam was that of a circular curve, with a versed sine of 200 feet, or nearly one-fifth of the span.

Several of the constructive arrangements were peculiar. The work consisted of a triple row of whole timber sheet piling, which derived interior support from counterforts, or buttresses of solid sheet piling, driven at intervals of 25 feet throughout its length. The long or through bolts were made to break joint and terminate at the middle row of piling, so that no water could pass along them through the dam. In the middle row of piling, wrought iron plating was substituted for timber walings, which formed excellent longitudinal ties, and left an uninterrupted surface on the piling, against which the puddle would lie compactly.

It was stated that these arrangements had imparted an extraordinary degree of stability and tightness to the structure, which had resisted the effects of storms, and the pressure of the tides, in the most perfect manner, during a period of fourteen months.

A portion of the ground, between the works and the shore, was described as being of a soft, silty clay, probably the site of an old channel; and as it was found, after all precautions, impossible to raise any solid structure upon it, the alternative was adopted of displacing it completely, by raising a bank of chalk stone rubble, which sunk down to the hard bed of clay beneath. This method was successful in forming a very fine embankment.

The abundant supply of water from Artesian wells in Grimsby was adverted to, and referred to to the vicinity of the chalk hills.

The conclusion of the paper drew attention to the magnitude of the masonry works now advancing at Grimsby, and for the formation of which the coffer dam was erected, and which, when completed, from the designs of Mr. Rendel, the chief engineer, and under the superintendence of Mr. Adam Smith, the resident engineer, will form, perhaps, one of the most useful, as well as the most important, maritime works of modern times.

The discussion upon the Grimsby docks being continued, the speakers, led by the Rev. the Dean of Westminster, in his usual able and energetic manner, were induced to diverge very widely from the original subject, to point out the acknowledged advantages that would result from engineers possessing a more accurate knowledge of geology, and being able to discriminate between strata by an examination of the component parts, and to decide upon their origin, as a guide in judging of their capability of supporting the weights likely to be placed upon them in the construction of works.

The Rev. Dean gave many instances where, in his opinion, more accurate geological knowledge would have secured greater success, or have prevented casualties. He quoted particularly the borings and the report said to have been made previous to the commencement of the Thames Tunnel, and the recent statement that the projected tunnel for receiving and conveying the sewerage of London down to the Essex marshes, would, throughout its entire length, have been in the London clay.—He showed, however, that no London clay was to be found eastward of St. Paul's, and that the plastic clay was constantly mistaken for it, in consequence of the observers not possessing a sufficiently accurate knowledge of the difference in the constituent features of the two clays.

On the other hand, although it was admitted that an accurate knowledge of geology was most valuable to engineers, it was contended that they were not so ill-informed on the subject as had been assumed. They did appreciate the necessity of that knowledge; and although they might not be able to discourse upon it with the eloquence of a Buckland, a Lyell, or a Sedgewick, or to speculate so



plausibly upon the events of past ages, no careful engineer ever decided upon the position, or mode of construction of his works, without a series of trial borings, a careful examination of the specimens, and experiments on them, chiefly with the view of ascertaining their strength, or capability for sustaining weights. Instead, therefore, of accusing engineers of knowing so little, it was rather a subject of surprise that they knew so much; for no profession demanded such varied acquirements, or the exercise of such general common sense and judgment.

It was shown that the position of the Thames Tunnel was not determined by the report, or the results of the borings, but with a view to establishing a connection between particular localities.—The borings were perhaps inefficiently made, as compared with those of the present day, with the improved apparatus now in use; but Mr. I. K. Brunel had made a very complete series of borings across the Thames, showing most accurately the strata of the bed, and no errors could have been induced by them.

The statement of the proposed sewer tunnel being in the London clay, never had been accepted by eminent men who understood their profession, however it might have been argued upon, as an assumed fact, by commissioners and boards of sewers.

The discussion was closed by the dean of Westminster giving an example of the urgency for engineers becoming geologists; and on Mr. Rendel stating, that the clay of Leith was so hard as to require to be blasted, and yet that, when exposed to a small current of water, was completely dissolved within a fortnight. This arose from the presence of a multitude of minute particles of mica, whose none-adhesive properties produced the speedy disintegration of the mass. This was admitted to be the fact, and had been observed and allowed by the engineer in the construction of the works.—*Prac. Mec. Journal.*

#### ON THE CONSTRUCTION OF SEWERS.

**Sewerage.**—Much difference of opinion exists as to the proper size for sewers for town drainage.—The Metropolitan Commissioners recommend the tubular system, varying from 6 to 24 inches in diameter, with a double line of pipes, and in low districts converging towards a central well, from whence the sewage is to be pumped by a steam engine, and forced to an outlet on the banks of the river. In the carrying out of this system it was intended only to have them of the bare minimum capacity required for house drainage, and storm water was to find exit in any way it could.

The Metropolitan Commissioners also condemned the sewerage works of the city of London, and the corporation in consequence called in Messrs. Walker, Cubitt and Brunel, the eminent engineers, to examine and report upon them. The report repudiated the idea of reducing the size of the city sewers, generally approved of the system adopted there, and recommended the extension of it to undrained streets and a system of flashing. They further state that London is the best drained city in the world, and that it is in advance of, and has taught all other cities lessons in sewerage.

Manchester, I believe, is the only town that has taken the initiative from the sanitary reports, and generally introduced tubular sewers, which it more efficient than brick construction, are also much more costly, as will appear by the following table:

Egg shaped tubular sewers.			Egg shaped brick sewers of the same capacity.		
In.	In.	Per yard.	In.	In.	Per yard.
12	by 9	at 4s. 6d.	24	by 18	at 2s. 6d.
16	by 12	at 7s. 6d.	30	by 24	at 3s. 0d.
20	by 15	at 10s. 6d.	36	by 30	at 3s. 6d.
25	by 18	at 15s. 0d.	42	by 36	at 4s. 0d.
29	by 21	at 21s. 0d.	48	by 42	at 4s. 6d.
36	by 24	at 27s. 0d.	54	by 48	at 5s. 0d.

This is exclusive of excavation in both cases.

An ingenious gentleman, named Wilkinson, of Newcastle, has invented a material for sewers, which he states is composed of a cement made in a peculiar way, and which will increase in hardness with age; it possesses advantages over similar articles made of clay, as it does not warp or twist, and the inverts can be made in 12 feet lengths, and the smaller size pipes in 4 feet lengths, they have also loose covers, so that they can be readily

examined at any time. The prices are as follows:

2 inches bore.....	3d. per foot.
3 " ".....	4d. "
6 " ".....	11d. "
10 " ".....	1s. 4d. "

Sewer in blocks, 4 feet by 2 feet 6 in. 8s. per foot. Blocks for inverts, 2s. per foot lineal.

The tubular system of sewers as a whole is not generally adapted for towns, it may suit small towns, or small collateral streets of large ones, but they have not yet been manufactured large enough to be suitable as main drains for the drainage of large areas.

The sizes of sewers must depend entirely upon the area to be drained and the fall or declivity to be obtained to the point of discharge, and at the same time, they should be large enough not only for house drainage, rain and stone water, but an allowance should be made for extraordinary storms. It has been the custom with all our eminent hydraulic engineers not to apportion their hydraulic or other works to the bare minimum duty they have to perform, but to make due allowance for any unforeseen contingencies.

This has been strongly confirmed by the report on the city of London above alluded to, in which it is stated that sewers should be large enough to admit a man for the purpose of repair or to remove deposit, and that the size for the main sewers should be 5 feet by 3 feet, and secondary sizes 3 feet by 2 feet. They further state that the air of small sewers is worse than large ones, and that no evil effect can be apprehended from well constructed brick sewers with a good fall and well cleansed, and they act as under drains for the surrounding earth, which the entire substitution of earthenware pipes with tight joints, would practically prevent.

Sewers with an inclination of 1 in 250 will keep themselves clean, without the aid of flashing; but when the inclinations exceed that, a system of flashing is indispensable to prevent deposit. But I consider in every case an occasional cleansing of the sewers, where a current of water cannot be obtained to pass through them, beneficial, as it tends to sweeten and purify them, and is the means of removing the causes of noxious exhalations.

The form of sewer I have adopted is one approximating to the egg shape (the true egg form not having yet been correctly developed for sewerage purposes) the arch is semi-circular, and the invert a series of segments. It departs as little as possible from the strong and advantageous form of the circle, (which is the figure of greatest capacity with equal circumference) while from placing the narrow end downwards, it concentrates the flow of the water over a smaller area, reduces the friction, and thereby adds materially to its capability of discharging fluids.

It is generally considered that the cylindrical is the strongest form that can be adopted for sewers; but there are other questions to be taken into calculation, as before stated, besides strength, viz: the best shape for the passage and discharge of fluids, and that is now generally admitted to be the egg shape.

I would strongly recommend for our future operations, the use of the Portland or lias cements for the inverts of our sewers, and blue lias lime for the arches, as no other material should be used than good hydraulic mortar in structures that are in any way exposed to the action of water, and where durability is desired.

The Portland and blue lias cement is cheaper than the Roman cement, as it will bear a greater proportion of sand, while its strength and durability is superior. Puzzolano or Terras are good hydraulic cements for sewers, though probably more expensive than those above stated. From experiments recently made, I find that smiths' ashes, or black oxide, adds very materially to the strength of hydraulic mortar, though it adds also a little to the expense. I think if arrangements could be made, it would be desirable to have the inverts of our sewers manufactured in blocks, say one foot or more wide, and two or three feet lengths, so as to have as few joints as possible in the inverts; and this might be further improved by having the interior surface glazed. I have made inquiries from various manufacturers, and they state there would be difficulty in making them. Again, it may be a question whether or not a smoother invert may be

formed by rendering the interior surface of the brickwork over with cement, as is the practice of some eminent architects.

The same objection applies to the formation of the inverts of our sewers in the rock, as to the dry brickwork alluded to above—the sewage will be certain to percolate through the fissures in the rock. The inverts of sewers should invariably be made impervious to moisture.

**Ventilation of Sewers.**—Much of the offensive gas that now escapes from our sewers, might be prevented by trapping the openings effectually, and by connecting air shafts or flues with the sewers, or the walls of the highest houses on the summit levels, so that the foul air may be sent in the atmosphere, and dispersed where it could not possibly be injurious or offensive. This is a plan I proposed two years ago, it is very simple in its nature, and would, I think, prove effective.\*

In London they are trying experiments to burn the gases by placing fires on gratings over openings in the sewers made for that purpose; from which it is proposed, I believe, to carry large chimney shafts to convey away the smoke and effluvia: but this is an expensive operation.

To be continued.

#### English Patents.

##### Railway Axles and Wheels.

William Kilner, of Sheffield, engraver, for "certain improvements in manufacturing railway and other axles and wheels; and in machinery to be employed in such manufacture."

1. The inside surface of the tyre, after being bent into a circle, is raised to a welding heat, by placing it into a hollow fire or closed hearth, after which it is laid on a block, and the spokes, previously heated at one end, are successively welded to it. The nave is composed of two half-naves formed of bar iron coiled into rings, with the internal hollow of less diameter at one end than the other; and the inner ends of the spokes are arranged on the face (with the smallest bore) of one of the half-naves, and the corresponding face of the other half-nave laid on them. Care is taken to leave a space between each pair of spokes, and to punch holes in them, in order that the inside surfaces of the half-naves may be welded together at these points. The nave and spokes are heated to the welding point by being placed above the fuel in a furnace, the top of which is made moveable for the purpose of admitting the wheel, after which they are welded together by swages, and the small ends of the half-naves welded over the ends of the spokes. Or two chams united by a right and left hand screw-coupling, and passing through the centre of the wheel, are attached to the opposite sides. The wheel is placed in a projecting hearth above the fuel, and when heated to the proper degree of temperature, the chain is tightened and the wheel formed. Instead of welding the spokes to the tyre after the latter has been bent into a circle, they may be welded to a straight bar of iron, which is then bent to the required shape around the ends of moveable blocks arranged to form part of a circle, with intervening spaces to receive the spokes.

2. To give the necessary rotundity to the tyre, a bed plate is employed which has a central vertical shaft, on which the wheel is placed, and is free to revolve thereon. Around the rim are two pairs of equidistant rollers, supported on spindles in the ends of four levers, the other extremities of which encircle two screw rods, whereby they can be made to approach or recede from the tyre, while above and beneath it are two other rollers, capable of being brought closer together. The rollers are driven by toothed gearing from any prime mover, and communicate their motion to the wheel. The felloe is formed with a dovetail, and the edge of the tyre bent over it by the action of the rollers. An adjustable scraper is made to act against the tyre, for the purpose of cleansing it.

3. For the purpose of turning the tyres, the patentee employs revolving circular cutters keyed on a shaft, resting on moveable bearings, which can

\* This system of ventilation is vicious in principle; by it the air we breathe would become contaminated. By the action of the wind, the upper stratum of air becomes intermingled with the lower stratum.—Ed. C. E. & A. Journal.

be made to slide up and down simultaneously by means of a hand screw.

The axles are constructed of two tubes, placed one within the other, or of a tube filled with bar iron, and welded at the ends only, or of a number of bars of iron, curved and overlapping one another, to give a spiral direction to the fibre.

Claims.—1. The use of the hollow fire or closed hearth for heating tyres to the welding point.—2. The projecting hearth.—3. Heating the inside surface of the tyre, by causing the flame and products of combustion to impinge against it, instead of by radiation.—4. Heating the spokes and tyre together, in order that they may be welded at the same heat; and arranging the spokes which have holes punched in them, at a distance from each other, between two half-naves, to allow of the surfaces of the latter being welded together at these points, as well as over the ends of the spokes.—5. The employment of two or more rollers acting uniformly and capable of being caused to approach or recede from the tyre, in conjunction with the scraper, for the purpose of rolling and cleansing it.—6. Boring and turning the inside and outside surfaces of railway wheels by revolving circular cutters.—7. The compound hollow axle.—8. The railway axle, composed of a tube filled with bar iron welded only at the ends.—9. The railway axle, with the bars of iron laid so as to give a spiral direction to the fibre.—C. E. & A. Jour.

#### Improvements in Steam Boilers.

Among the entries of papers to be read in the mechanical section at the late Birmingham meeting, was one on "Wright's Steam Generator;" but owing to some mismanagement, the subject never came before the section. We have since received particulars of the scheme, which we may here explain:—The principle upon which it is founded, is the circulation of a small portion of highly-heated water through tubes, in communication with the great mass in the boiler. The peculiar construction of the entire apparatus will be best understood by first considering only one portion of it, that called the "cellular plate." If we imagine two sheets of corrugated iron, measuring about 2 feet by 6 feet, with the corrugations the short way of the plates, it is evident that, on laying these together, we should have a series of short open tubes, each connected by a narrow rib of metal. If we were now to take two tubes, each 6 feet in length, or rather larger bore than the 2 feet tubes, and had one row of apertures made in each, corresponding with the ends of the short tubes formed by the corrugated plates, these, if they could be welded to such apertures, would form one entire plate of connected tubes, with no other external openings than the four ends of the two longitudinal 6 feet tubes. This arrangement, though it would be a matter of some difficulty and expense to accomplish in wrought iron, is easily made in malleable cast iron. A wagon boiler has been fitted up at the manufacturer's establishment, 143 Great Suffolk street, London, for experimental purposes. Two of the cellular plates just described are placed within the boiler, a few inches from the bottom, and are connected by short elbow pipes passing through the ends of the boiler, with two corresponding cellular plates immediately underneath the bottom of the boiler, forming the crown of the furnace: the several connections are so arranged, that a continuous circuit is maintained throughout all the tubes, which are then filled with water, amounting to about 7 gallons in this instance. This apparatus being furnished with an expansion vessel and two safety valves, perfect security is obtained against explosion; and the temperature of this small quantity of water is, under this arrangement, readily got up to between 400 and 500 deg. Fah. In the experimental boiler and furnace under consideration, the boiler, though only 6 feet 9 inches long, 3 feet 6 inches wide, and 2 feet 6 inches deep, containing water only 9 inches deep in the centre, with two cellular plates immersed therein, measuring 6 feet and a half by 20 inches, and, under ordinary circumstances, only equal to a 4-horse power boiler, yet, such is its rapid steam-generating property in connection with the cellular plates, that steam sufficient is obtained for a 12-horse power engine. The furnace presents a grate surface of 4 feet square. The result of numerous experiments show, that upwards of 12 lbs.

of water are evaporated for every pound of coal, whereas, in common practice, 5 to 6 pounds of water per pound of fuel is considered an excellent performance; and, indeed, with locomotive boilers of most approved construction, employing the best coke, 7½ lbs. of water evaporated per pound of fuel is reckoned a good average duty. There is another consideration not unworthy of notice, that the furnace, with its two overarching cellular plates, full of oblong apertures in the metal connecting the short tubes, side by side, is peculiarly favorable for effecting the most intimate mixture between the air and the gasses in the furnace, as well as in keeping up their temperature to that degree most favorable for their perfect combination and combustion, so absolutely requisite to prevent the evaporation of smoke; the consequence is, that a constantly bright flame may be observed playing along the boiler bottom, materially assisting the evaporation process.—*Prac. Mech. Jour.*

#### AVERAGE PRICE OF BAR IRON.

The subjoined statistics of the prices of bar iron are extracted from a paper on the iron trade, by Mr. John Barclay, which appeared in the *Mining Journal*:—

1813.....	£12 6 8	1827.....	£9 7 6
1814.....	13 18 4	1828.....	7 18 4
1815.....	13 13 4	1829.....	6 16 6
1816.....	12 2 6	1830.....	6 3 9
1817.....	10 12 6	1831.....	5 13 9
1818.....	12 1 8	1832.....	5 13 4
1819.....	12 5 0	1833.....	6 12 11
1820.....	10 13 4	1834.....	6 18 9
1821.....	8 18 4	1835.....	6 10 0
1822.....	8 1 3	1836.....	10 12 6
1823.....	8 0 0	1837.....	9 1 3
1824.....	8 19 2	1838.....	9 4 7
1825.....	12 14 2	1839.....	9 15 0
1826.....	9 15 10		
Rails.....	5s. to 7s. 6d.	extra to prices of bars	
Sheets.....	40s.	ditto.	
Angle iron.....	30s.	ditto.	
Hoops.....	40s.	ditto.	
Best iron.....	25s. to 30s.	per ton extra.	

#### GOV. JAMES C. JONES.

This most gifted and eloquent son of Tennessee, although not mingling in the strife of party politics, and holding only the station of "high private" in the ranks of the people, is doing more than a yeoman's service in a great and glorious cause—a cause which will one day place his name along side that of De Witt Clinton. We allude of course to the cause of internal improvements. As agent for the Nashville and Chattanooga railroad he accomplished more to secure the subscription of the capital stock, and thereby secure the certain completion of the road, than any man in Tennessee; and the great mass of the people will honor him in coming time, as the champion who first gave that great work its impetus, and insured its early and successful completion.

We have been led into these remarks from noticing, in the *Holly Springs (Miss.) Gazette* of the 28th ult., a notice that Gov. Jones will visit that place and address the citizens of Marshall county and North Mississippi, upon the subject of the Memphis and Charleston railroad, on Monday, 23d April.

The fame of the orator is sufficient to command an audience as large as the most ambitious man can desire to address.—*Weekly Review.*

#### ENGLISH RAILWAYS.

It appears from a return just issued that the total number of persons employed upon railways open for traffic on the 30th June, 1849, was 55,968, and the length of railway 5,447½ being at the rate of 10·3 persons per mile. There were at that date employed on these lines 156 secretaries and managers, 32 treasurers, 107 engineers, 314 superintendents, 120 storekeepers, 138 accountants and cashiers, 490 inspectors and timekeepers, 1,300 station masters, 103 draughtsmen, 4,021 clerks, 709 foremen, 1,839 engine drivers, 1,871 assistant engine drivers and firemen, 1,631 guards and breaksmen, 1,540 switchmen, 1,361 gatekeepers, 1,508 policemen or watchmen, 8,238 porters and messengers, 5,508 platelayers, 10,809 artificers, 14,029 laborers, and 144 in miscellaneous employment. The total

persons employed upon railways authorised, but not open for traffic, on the 30th of June, 1846, was 103,816, the total length in course of construction being 1,504½ miles, and that of railways neither open nor in course of construction, 5,132½ miles; together 6,636½ miles. The number of secretaries and managers employed on these lines at the above date was 149; treasurers, 7; engineers, 269; superintendents, 419; storekeepers, 182; accountants and cashiers, 144; inspectors and time keepers, 821; draughtsmen, 153; clerks, 421; foremen, 1,421; policemen or watchmen, 481; porters and messengers, 118; artificers, 16,144; laborers, 83,052; and miscellaneous, 42. The total length of railway authorised on 30th June, 1849, was 12,083½ miles; and the total number of persons employed thereon, 159,784.

#### Alabama.

##### Mobile and Ohio Railroad.

We have received the report of the proceedings of the second annual meeting of the stockholders of this company, held at Mobile on the 5th of February last. Since the last annual report, preliminary surveys of the route have been completed to the mouth of the Ohio. In August last about 8 miles of heavy work, commencing about 25 miles from Mobile, were put under contract, and in December conditional contracts were made for the grading, etc. of the remainder of the first division of the road, extending from Mobile to Buckatunna, a distance of 70 miles.

The final execution of these contracts was to depend upon the means of the company. As these now are sufficient to justify their completion, we presume that they have been made absolute. When the project of constructing the above road was started, very liberal subscriptions, amounting to about 700,000 dollars, were made to the work, mostly in Mobile. This subscription rendered those making it absolutely liable for only 20 per cent of the amount subscribed. The directors of the road being unwilling to put the work under contract upon such security for means to prosecute it, a new subscription was called for absolute in its terms;—and at the time of the annual meeting these new subscriptions reached the sum of \$268,000. This amount it was estimated would be increased at least \$200,000 by persons who had not made their subscriptions absolute. This would make the available means of the company as follows:

Individual subscriptions.....	\$268,000
Estimated ".....	200,000
City of Mobile subscription (since made).....	300,000
	\$768,000

The following is the estimated cost of the first division:

Grading, masonry and bridging.....	\$108,000
Thirty-three miles superstructure and three miles street tracks and sidings.....	250,000
Machinery and cars.....	45,000
Repair shops at Mobile.....	20,000
Engineering Department.....	11,200
Contingencies.....	20,000—\$454,200
Amount estimated for present engagements from Feb. 1, 1850, to Feb. 1, 1851:—	
To complete Riddle's contract.....	66,000
Engineering Department.....	4,800
Contingencies.....	6,000— 76,800
Total for 33 miles including Riddle's contract, with equipment in working order.....	\$531,000

Estimated wants for road bed beyond Riddle's contract, to Buckatunna to be completed the 2d year, are for



Grading, masonry and bridging section 24 to 40, inclusive .....	\$249,140
Engineering department .....	16,000
Contingencies .....	10,000—\$275,140
Estimated wants to complete the upper sections, 3d year:	
37 miles superstructure and 2 miles sidings .....	273,000
Machinery and Cars .....	55,000
Addition to repair shops .....	10,000
Engineering department .....	8,000
Contingencies .....	12,000—\$358,000
Postponed payments and future general expenses .....	35,860

Total in working order to Buckatunna, 70 miles.... \$1,200,000

Leaving a deficiency of \$432,000 to be provided for.  
The following is the estimated cost of the whole work:

*Alabama Division.*

Mobile to Buckatunna river in complete working order .....	69.6 miles....	\$1,200,000
Buckatunna river to Kemper county line complete as above .....	94.6 miles....	1,861,795

Total for Alabama division .....

*Mississippi Division.*

Kemper county line to south boundary Tennessee, as above .....	176 miles...	\$3,199,911
Part of branch to Tennessee river, in Miss .....	15 miles...	249,372

Total for Mississippi division .....

*Tennessee Division.*

South boundary of Tennessee to south boundary of Kentucky .....	119½ miles...	\$2,053,621
Remainder of branch to the Tennessee river .....	8 miles...	186,641

Total for Tennessee division .....

*Kentucky Division.*

From Tennessee line to Ohio river .....	39½ miles...	\$949,240
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Making a total expenditure from Mobile to the Ohio river, to complete and equip the road, (including branch to Tennessee river, 23 miles,) for .....

In reference to the ability of the section of the country interested in this road to construct it, the directors say:

By this distribution of the cost, it will be seen that the proportion devolving upon Alabama to construct is only 164.2 miles, requiring \$3,061,795 to complete, with machinery, &c., in full operation. Although this great work, taken as a whole, may seem, to some, an enterprise too formidable for individual effort—yet when the fact is considered, that the energies of four wealthy and populous States will be directed to its consummation, and that the amount which any one state will be called upon to contribute for the purpose, is not more than one third the sum which the single state of Georgia has already invested in railway improvements—the Mobile and Ohio railroad presents no difficulties that should deter an energetic people from undertaking its accomplishment.

With the design, not so much to obtain present state aid, as to call the attention of the people of Alabama, through the Legislature, to a basis for future action—a memorial was prepared, and has been presented to the Senate, setting forth a plan by which the state can extend efficient aid to the great works of internal improvement within her

borders, without involving herself in any liability, for which she will not hold ample and profitable security. The necessity of state action in behalf of these objects is becoming every day more apparent, and public opinion is rapidly ripening in its favor, so that there are strong reasons for believing that the next Legislature will be prepared to grant to this company the assistance desired to complete the road from Buckatunna river the Kemper county line.

A similar memorial is now before the Legislature of Mississippi, and assurances are given by members of that body, that a liberal portion of the internal improvement fund will be appropriated towards the extension of the work through that state.

A bill has also been introduced into the U. States Senate, donating to this company the alternate sections of public lands, twelve sections in width upon the line of the road. All the information in the possession of the board is favorable to the passage of this bill.

In reference to the general route to be adopted, we copy the following from the report of the Chief Engineer:

Of the two grand routes proposed at the last annual meeting, the eastern one has proved the best, passing from the valley of Chickasawha through Lauderdale, Kemper, Noxubee, Lowndes, Monroe, Itawamba and Tishamingo counties, Mississippi; McNairy, Madison, Gibson and Obion counties, Tennessee; Fulton, Hickman and Ballard counties, Kentucky. The preference is awarded to this route because it is more direct in its course to the north; passes through the most fertile sections of Mississippi; intersects the Tennessee river and North Alabama trade in its course; and thence passes more centrally and favorably through Western Tennessee and Kentucky.

A glance at a map of the United States is a sufficient illustration of the importance of this work. By the route proposed, the distance from the mouth of the Ohio to the Gulf of Mexico is less by one-half than the distance from the same point to New Orleans. It would, in connection with the proposed roads in Illinois, bring Lake Michigan within 900 miles of Mobile, thus bringing the products of the tropics and those of the north within easy reach of each other. In this country the natural course of trade is at right angles with the parallels of latitude; the products of the south seeking their market in the north, and those of the north finding their appropriate market in the south. The country penetrated by the line is one of the most fertile in the Union, and for the most part very healthy. All the conditions, therefore, are here present to warrant the construction of the work; and the only argument against it is the vastness of the undertaking. But the surest way to success is to commence and push forward with what means are at hand.—Means will develop themselves as the work will progress; and counties and States interested in its construction will lend their credit to its aid. We presume that the strength along its line is sufficient to prepare the road for the rails. If such is the case there will be no insuperable difficulty in procuring the iron and necessary equipment. If a western road can do this, success is considered certain. It finds but little difficulty in negotiating securities in this market, and at not very exorbitant rates, for rails, engines, etc.

This road if constructed would be national in its influences and benefits. It is necessary to give symmetry to the great system of railroads which is so fast spreading itself over the country. This system requires one great arm resting upon the Gulf of Mexico to maintain its communication with that quarter. Mobile has a vast interest in the success of this work, as it would give her a conspicuous place among the leading cities of the Union.

The following constitutes the list of directors for the present year:

SIDNEY SMITH, Pres't.

Francis B. Clark, Charles LeBaron,  
David Stodder, John Bloodgood,  
George N. Stewart, Charles Gascoigne,  
J. Emanuel, John A. Campbell,  
Moses Waring, J. M. Cunningham, Miss.  
J. W. Cambell, Ten. B. E. Gray, Ky.

*Ohio.*

*Bellefontaine and Indiana Railroad.*

We have received the report of the preliminary surveys of this road, by W. Milnor Roberts, Esq., chief engineer, illustrated by an elegant map showing its connections with the roads running west from all the great Atlantic cities. We have frequently spoken of this road as one of the important links in the great line of railroad from Philadelphia to St. Louis. This however is destined to form a part of all the lines of railway running from Boston, New York and Baltimore, as these will make a common point at or near the eastern terminus of the Bellefontaine and Indiana road. All the eastern cities have a similar interest in the construction of the last named road, because all must pass over it on their way to St. Louis. It strikes the eye more conspicuously as a part of the line from Philadelphia, as the various roads now in progress from that city to the Mississippi form a remarkably direct route—much more so than from any other eastern city—and will form, when completed, one of the grandest lines of railroad in the world. By this line the distance from Philadelphia to St. Louis will be 981 miles, made up as follows:

Pennsylvania Central railroad .....	356
Ohio and Pennsylvania railroad .....	180
Bellefontaine and Indiana railroad .....	120
Indianapolis and Bellefontaine railroad .....	83
Terre Haute and Indianapolis railroad .....	72
From Terre Haute to St. Louis .....	170

981

From Baltimore to Pittsburgh is 323 miles, consequently Baltimore by this route is 948 miles from St. Louis. From the eastern terminus of the Bellefontaine and Indiana railroad to New York, via Dunkirk and the New York and Erie railroad, it is 697 miles, making the distance from New York to the Mississippi river, by the above route, 1142 miles, and from Boston 1236 miles.

The route of the proposed road, like most others at the west, is very favorable to railroad construction. In relation to the characteristics of the road we copy from the report as follows:

1st. Its *directness*: in obtaining an easily practicable line throughout, it has not been found necessary to increase the length between the points fixed in the charter, very materially over the air line distances. The principal increase occurs between Marion and Bellefontaine. The total increase on the whole route will not exceed about five miles; in this respect comparing most favorably with any railroad of similar extent with which I am familiar.

2d. The *grades* are more favorable than those on either link of the same great railroad chain eastward of your line. The maximum being 39.6 feet per mile, and the longest grade of this character being only about 2½ miles. In 120 miles, 93 miles are either level or with grades under 27 feet per mile. The grades taking the average on the whole route will be about 18½ feet per mile.

3d. Its *curvature*: In this important feature the plan of your road will be admirable. In 120 miles there will be but 9 miles of curved road, leaving 111 miles of straight line, and nearly all the curves may be described with radii of 3000 feet or more, which for practical purposes will make nearly the whole road equivalent to a straight line. Among the straight lines there are one of 30, one of 20, one of 17, and two of 8 miles in length.

4th. The whole amount of work is small; and

the easy nature of the excavations is an important recommendation. Except on a portion of the Zanesville route—in case that should be adopted—there will be no rock or slate excavations. They will consist of earth and gravel, which on a large portion of the line may be cheaply removed. The total length of bridges required on the route will be about 1100 feet, or an average of less than 10 ft. to a mile; and the longest single bridge need not exceed 250 feet of water way.

With such facilities for construction the engineer estimates the whole cost of a first class road, not including the equipment, at \$12,000 per mile: making the whole cost \$1,440,000. The cost of grading, bridging, etc., is estimated at \$4,000 per mile. It is believed that this can be raised by private subscription, leaving the iron and equipment to be purchased by the bonds of the road, and the securities of the towns and counties on its line.—The president of the road, James H. Godman, Esq., we understand is now in this city for the purpose of negotiating some of these securities.

It may be proper to state here by way of explanation that the above road is not very appropriately designated by its title, which conveys an indefinite and rather erroneous idea of its locality. It is entirely an *Ohio* company, and was named at a time when its limits terminated at Bellefontaine, a distance of about 58 miles from the Indiana State line. Its chartered rights were afterwards extended as far as Mansfield, the capital of Richland county, tho' its eastern terminus will probably be fixed at some point on the Cleveland, Columbus and Cincinnati railroad.

The town of Bellefontaine is actually in the *middle*—the half-way station of the road, instead of being at either extremity, as would commonly be supposed.

The name Bellefontaine is almost as inappropriately employed to designate the *Indiana* road extending from Indianapolis to the Ohio line, 83 miles. That is called the *Indianapolis and Bellefontaine* railroad, when it does not reach within 58 miles of the latter town.

With regard to the business prospects of this road we will merely add our opinion, which we have so often expressed, that every road in the west, thro' a well settled district, if well constructed a properly managed, will be sure to yield a liberal income. They can there be constructed very cheaply, and must have a very large amount of business. The above road, running through one of the best portions of Ohio, must enjoy a large local traffic, and being a part of a great line, between the Atlantic and the Mississippi, its through business must be enormous. The construction of the Cleveland and Columbus will bring this road into use as fast as the several portions are completed, and this will give immediate means to meet the interest on such indebtedness as it may incur.

#### MANUFACTURES AT THE SOUTH.

The Savannah Republican estimates that there are in operation in Georgia 40 cotton mills, employing near 60,000 spindles, and consuming 25,000 bales of cotton annually. In this estimate, which seems to be below the true mark, no calculation is made of our paper mills, bucket factories, iron establishments, flouring mills, etc. In Tennessee it been reported to the Secretary of the Treasury that there are 30 factories, employing 36,000 spindles. In South Carolina, the Hon. William Gregg says there are 16 factories, containing 36,500 spindles and about 700 looms, consuming 15,000 bales of cotton per annum. He estimates the capital invested in these establishments at about one million

of dollars, and the number of operatives they give employment to at 1,600. There are in Alabama 12 factories, with a capital of \$500,000, containing 12,000 spindles, and 300 looms, and consuming about 5,500 bales of cotton annually. It is said that machinery for others is contracted for, sufficient to make the number of spindles 20,000, and the looms 550. Thus we have in four States ninety-eight manufactories of various descriptions of cotton goods, containing 140,000 spindles. There are doubtless many other cotton mills in the other Southern States, which would swell the number.—In addition to these, there are others going up, not only in this State, but everywhere else in the south. We hazard but little in saying, that at the end of next five years there will be perhaps two hundred cotton factories in operation in the Southern States consuming near two hundred and fifty thousand bales of cotton per annum, and giving employment to twenty-five or thirty thousand operatives. The effect of such a diversion of labor upon the productions of the south, the price of cotton and the habits of those will likely be employed as operatives must be immense. All the cost of the transportation of the raw material to England, of its manufacture there, and its transportation back to this country, will be saved to our people. The general price of cotton will be increased by the competition which will ensue between the manufacturing establishments of Europe and the Northern and Southern State; and great good to Society must result from the employment of thousands of persons, who are now consumers and not producers.

#### Pennsylvania.

The contracts on the Ohio and Pennsylvania railroad, between Pittsburgh and Beaver, have all been let. The Pittsburgh Gazette says:

Seldom has there been a more spirited competition for contracts on any public work, than at the letting of that portion of the Ohio and Pennsylvania railroad. The whole number of firms bidding was 129, some of them for all the sections. The gross number of single bids, counting a bid for a section as one bid, was about 1,400. Great competition existed among well known, experienced and good contractors. The board, in making the allotments, sought to let the work to good contractors, at low rates, which, from the great variety of bids, they found but little difficulty in doing; many of the bidders offered to take 10 per cent. in stock of the Company.

#### Iron Manufacture in Michigan.

Detroit, Mich., May 4, 1850.

MR. EDITOR—As the readers of your very valuable and widely-circulated paper are practical business men, and as there is at present a vast amount of capital laying idle in our chief commercial cities, which would gladly seek a profitable investment, I propose to show that a more judicious expenditure of money cannot be made than the erecting of *iron rolling mills* in the city of Detroit, in the new State of Michigan.

It may not be generally known, but such is nevertheless the fact, that the iron mines of Lake Superior in this State yield a greater amount of *rock ore*, of a purer quality, than any portion of the American Continent. This ore, which is found in knobs or hills, about one hundred miles from the foot of the Lake, and fourteen miles from its southern shore, is incalculable in quantity. Many of these hills are from two to three hundred feet in height, one mile in length, by a half a mile in width.

The quality of the iron produced from the ore is second to none found in the world. It has been

thoroughly tried in New York, Boston, Pittsburgh and this city; and in every instance the preference is given to it over Sweeds or old sable Russia. A company, with a small amount of capital, has been at work at the mines about two years, and has produced between two and three hundred tons of bar iron. Another company has been in successful operation for the past year in transporting the ore to the lake shore, where it is manufactured into what are known as "blooms." This company are now working eighty men; and will have ten forge fires in full blast by the first of July next. The amount of "bloom iron" produced during the year 1850 will not be less than fifteen hundred tons. When it is recollected that this is the first year's operation of only one company, you will agree with me when I say it is immense.

I now come to the object of this article. There is not a rolling mill north or west of Pittsburgh.—The States of Michigan, Wisconsin, Northern Ohio, Indiana and Illinois use a goodly quantity of iron. The city of Detroit alone imported 2,483 tons of iron, and 12,300 kegs of nails in 1849, and what is Detroit compared with the amount used by the States above mentioned?

The Lake Superior mines will in 1851 turn out a sufficient quantity of iron for all of them, if we can induce capitalists to come among us and erect the necessary machinery to put the iron into the suitable shape for consumption. Detroit is situated on the largest and most commodious harbor in the interior of the United States. Its geographical position is inferior to none; being midway between east, west, north and south, with which she is connected by canals, rivers and lakes; consequently she can command the most profitable markets for her products. If New York and Boston will not pay her as well as St. Louis and New Orleans, she can avail herself of the latter places by means of water communication the whole distance, and at prices that quite compete with transportation eastward.\*

Fuel is abundant and cheap; labor, food and clothing are also cheap; and what, I ask, with all these advantages, (which no human being can gainsay,) is to prevent the most profitable return from an outlay of capital, when it is recollected that in the city of Pittsburgh, in the interior of Pennsylvania every man has been made almost independently rich who has for the last 15 years been engaged in just such operations as the one here contemplated.—There is to my mind not the least shadow of a doubt, but that that man, or set of men, who first establish themselves in the manufacture of iron and nails alone at this point, will in a very short period of time, double, if not treble their investment. My reason for arriving at this conclusion is, that, as I said before, the quality of the metal is superior to any produced on this continent. When this fact shall have become generally known, Pennsylvania herself will be one of our customers. Already our mechanics are (having had a taste for it as it were) looking forward anxiously for the day when they can be furnished with it; for, to use their own language, they "prefer it to any they have heretofore worked."

The Michigan Central railroad company, which uses no inconsiderable quantity, invariably reserves this iron for those parts about their locomotives and cars where great strength and tenacity are required.

\* The price of freight to New York is \$9; Cincinnati, \$6; St. Louis, \$6 50.



Captain E. B. Ward, so well known as the owner of the railroad line of steamers on the north shore of Lake Erie, gave directions to his workmen, when they were about to replace a broken working beam on the Steamer Samuel Ward, to use none other than Lake Superior iron in making the strap or band. Innumerable testimonials could be produced if necessary, to prove the very extraordinary quality of this metal; but as it has never as yet been questioned, I will not occupy your attention in detailing them.

If the manufacture of iron at Pittsburgh out of the ordinary bog ore has been, and continues to be, so profitable, what cannot be done with this rock ore? It is also peculiarly adapted to the manufacture of steel. I have known a knife, that was made of it, perform the most delicate operation that would be assigned to one of Wade and Butcher's best razors; and this knife was made in a simple blacksmith's forge with a charcoal fire.

Will not some of your New England patrons, who, of all men in the country, are the most enterprising, favor us with a visit during the coming summer, and give this subject a little investigation? If I can only get them to take one trip to the iron hills on the lake, and then spend a few days with us in gathering statistics, I am quite sure that no other argument will be necessary to get them to embark in the enterprise. DETROIT.

#### Tennessee

*Nashville and Chattanooga Railroad.*—We copy the following from the Nashville True Whig of recent date:—

Four thousand tons of iron for the Nashville and Chattanooga railroad have already arrived at New Orleans, and about 1,600 tons have been shipped to this city. The company will commence laying down the rails from Nashville towards Murfreesboro in June or July, and in December at Chattanooga, so as to meet near the middle of the line.

We are rejoiced to learn that companies are now about to be organized to build a railroad from this city to Columbia, and in the opposite direction to Bowlinggreen, Ky. Men of the requisite enterprise and ability are taking hold of the work, and we have good reason to believe that both lines will be speedily constructed. This is "going ahead" in the right way.

#### IRON MANUFACTURE IN PITTSBURGH.

The Pittsburgh Board of Trade, in a circular recently issued by it, states that in that city and its immediate vicinity, there are now thirteen rolling mills, beside five others within the compass of fifty miles—the actual product of which is, say 70,000 tons pig metal: yielding, say, with the labor employed, about \$5,000 per annum. There are also sixty foundries and engine shops, consuming some 20,000 tons more pig metal, and yielding with the labor employed, about \$2,000,000. With a great many glass, there are also six large cotton factories, together with other kinds of manufacturing establishments in this city—producing articles of not less than \$5,000,000 more, which with, say 5,000,000 annually paid for labor in the establishments, will make \$10,000,000. The number of blast furnaces in Clarion, Venango, Mercer, Butler, and other counties in northern and western Pennsylvania, is now one hundred and fifty, sending to this market near about one hundred thousand tons of metal, and valued between two and three millions of dollars.

There is now annually exported from the counties of Westmoreland, Fayette and Washington, on the Monongahela Improvement, about 6,000,000 bushels of coal, producing in all about \$400,000. There are also about 12,000,000 bushels annually

consumed in our manufacturing establishments in this city and vicinity, valued at about half a million of dollars, and all dependent upon the Pittsburgh banks for their accommodations. To sum up the whole, the increase of business in all the various branches within the past ten years, has been not less than 300 per cent., and depends upon a banking capital of less than three millions of dollars, when in 1838, the banking capital and circulation was near eight millions, and not then considered as sufficient for the actual business of the place.

#### Pennsylvania.

##### Reading Railroad.

It will be seen by referring to the weekly statement of coal shipments, that the total amount of coal transported over the Reading railroad, from the 1st of December, 1849, to Thursday last, (May 2) a period of five months—is 357,056 tons, being an excess of 115,177 tons over the shipments during the same period last year. It is worthy of remark and commendation, and we presume the announcement of the fact will prove highly acceptable to the bond and stockholders of the company, that while the business of the Reading railroad this year shows a large increase over that of last year, the expenditures have been greatly decreased.

The affairs of the company were never in better hands than they are at this moment. The President, John Tucker, Esq., is a gentleman of enlarged views and the most thorough business qualifications, which he is turning to the best account in advancing the interests of the company. Of the superintendent, G. A. Nicolls, Esq., it is enough to say that he has held his present responsible station from the time the road was first opened, and given satisfaction throughout. Although the business of the road has increased in an astonishing ratio, he has been found fully equal to meet and direct its operations so as to yield the largest return, with the least possible expense. This has been effected by the introduction of a perfect system in every department. Every employee on the road knows his duty, and is severely censured, and very often dismissed, for neglect of it. Every train has its appointed hours of starting and stopping, and is required to perform its trips within a given time, so as not to interfere with others. By the aid of the telegraph, the principal officers of the road enjoy a sort of ubiquity throughout the entire length of the line. All detentions, accidents or mishaps are promptly reported over the wires, and directions are promptly returned how to act in the premises. It is this that enables the road to do so enormous an amount of business—and yield so rich a return to the stockholders.

In the workshops of Reading a similarly well ordered system, and the most rigid economy, obtains. Mr. James Millholland, who has this important department under his charge, is peculiarly fitted for the station. Possessing a thorough knowledge of mechanical science, added to much practical experience, he is enabled to direct the operations so as to conduce to the best interests of the company.—The first mechanical talent is employed and well and promptly paid for. Every man is expected to have a thorough knowledge of the peculiar branch for which he is engaged. All know their duty and are expected to attend to it. No drones, or inefficient hands are tolerated. The most approved kinds of machinery are used in the various shops—and everything is required to be kept in ample order. It is not surprising that this system of doing

business has effected the most gratifying results. In the workshops alone thousands of dollars are annually saved to the company, and the same may be said of every other department. The clerks are all men of character, honesty and worth—attentive to the performance of the duties devolving upon them. As in all well-ordered enterprises, merit is rewarded by preferment, while neglect or inattention is sure to meet with its reward.

A word as to the prospects of the road. They are truly gratifying. The company are confident, and with reason, of being able to declare a dividend of six per cent., this year, on the common stock. This was hitherto deemed impossible, but we confidently believe it will be done—and if effected this season, and during the comparative depression of the coal trade, we see no reason why it may not be done every succeeding year. Nor is it likely that they will stop at that—for should the business continue to increase, and the connecting roads now in contemplation be constructed, as there is good reason to believe they will be, the time is not far distant when the surplus proceeds, over and above a good dividend and the payment of the interest, will be sufficient to constitute a sinking fund for the gradual liquidation of the principal. We congratulate the company and friends of this great improvement, in view of these gratifying prospects.—*Reading Journal.*

#### ONEIDA LAKE IMPROVEMENT.

From the Oswego Commercial Times.

This new route from Oswego east to the Erie canal, through the Oneida river and lake, is now exciting great interest among the business men of this city. It promises well, and important results will probably grow out of it, as a new, more economical, and quicker route for freight from Oswego to the eastern markets. Mr. Littlejohn, an intelligent, energetic forwarder, of the firm of Fitzhugh & Co., of this city, has been through this entire route, and from him we have obtained some reliable details concerning it.

Oneida lake empties into the Oswego river at "Three River Point," about 18 miles from this city. The Oneida river is 19 miles long, and is broad, beautiful, and of great depth. It unites with the Oswego canal by two locks, and nine miles above the entrance, is the bridge which has obstructed navigation, and which has legally been removed, so that the steamer could pass with her tow of canal boats. At the entrance to the lake is Brewerton, where another bridge, with a draw is found. On this river between the lake and the canal, the "Oswego," a new and powerful steamer, is now placed for towing boats up and down the river.

Lake Oneida itself is 22 miles long, and is one of the most beautiful sheets of water in western New York. The steamer "Oneida" is placed there for towing, and her compliment of boats is twelve in a tow. She runs as far as Wood Creek, which is two miles in length. The boats then take the canal, which is about four miles before they reach Higginsville, where they enter the Erie canal.—The route by this lake and river is two miles shorter, but it is the circuitous character of the river portion of it, which renders it so extended. About ten miles are run to reach a distance of three miles in one instance.

One advantage of this route over the route through Syracuse and the Erie canal, is the saving of tolls and time. The time occupied between Higginsville and Oswego, will average between 24 and 36 hours, saving 12 to 24 hours in a trip. This, especially, in the spring and autumn, when the Erie canal is crowded with boats, will probably be materially increased. In regard to the economy of the route, it is estimated that about \$30 in tolls may be saved on each trip, on full cargoes of merchandise up and flourdown. There are small tolls to be paid on the canal portion of the route, and also for towing, but the saving in the aggregate during the year must reach some thousands of dollars to each for-

warding house. To avoid delays, it is also decided to add another steamer to the lake, which will be ready in June. We understand the route will be perfectly arranged in a few days, and in point of safety, speed and economy, it will unquestionably be found vastly superior to the Syracuse route.

### AMERICAN RAILROAD JOURNAL.

Saturday, May 11, 1850.

#### News from Europe.

The facilities of communication between this continent and Europe are now so great that the commercial affairs of this country are closely interwoven with those of the old world in every department of trade and business. The trade of this country is as much influenced by that of Great Britain as if she was only a different portion of this government, or at any rate, this is the case as far as the movements in the stock market are concerned. Four steamers arrived last week.

The CANADA brought the latest advices, from Liverpool to the 20th of April, and London dates to the evening of the 19th ult. We give such items as most directly affect the money market of this country:

#### BANK OF ENGLAND.

##### Issue Department.

Notes issued.....	£30,044,650
Government debt.....	11,015,100
Other securities.....	2,984,900
Gold coin and bullion.....	15,800,773
Silver bullion.....	243,877
	£30,044,650

##### Banking Department.

Proprietors' capital.....	14,553,000
Reserve.....	3,077,384
Public deposits (including exchequer savings banks, commissioners of national debt, and dividend ac- counts).....	4,914,388
Other deposits.....	10,969,389
Seven day and other bills..	1,151,963
	£34,666,124

Government securities (in- cluding dead weight an- nuity).....	14,209,962
Other securities.....	9,744,702
Notes.....	9,997,075
Gold and Silver coin.....	714,385
	£34,666,124

M. MARSHALL, Chief Cashier.

April 12, 1850.

The market for English securities has again fluctuated to some extent, the prices of this day being rather below those of last week. To-day there was a rather more healthy tone to the market, and consols, for both money and account, closed with some steadiness at 95½ to 96; while the new 3½ per cents. were quoted at 97½ to 97¾, and exchequer bills 69 to 71 prem. for both large and small.

The following table shows the fluctuations in consols from April 15 to April 19:

For Money.				
April.	Lowest.	Highest.	Closing.	
Monday 15.....	95½	95½	95½	
Tuesday 16.....	95½	95½	95½	
Wednesday 17.....	95½	95½	95½	
Thursday 18.....	95½	95½	95½	
Friday 19.....	95½	96	96	

For account.				
April.	Lowest.	Highest.	Closing.	
Monday 15.....	95½	95½	95½	
Tuesday 16.....	95½	95½	95½	
Wednesday 17.....	95½	95½	95½	
Thursday 18.....	95½	95½	95½	
Friday 19.....	95½	96	96	

The following quotations of American securities were the prices current the afternoon of the 19th:

	Interest.	Redeemable.	Price.
United States... 5 p. c. dollar.	1853	94 a 95	
Ditto..... 6 " "	1862	105—106	
Ditto..... 6 " "	1867	109—109½	
Ditto..... 6 " "	1868	110—111	
N. York state... 5 " "	1855	97½—98½	
Ditto..... 5 " "	1858-60	97½—98½	
Ditto..... 6 " "	1865	108—	
New York city... 5 " "	1855-70	95—96	
Pennsylvania... 5 " "	82½—83½		
Ohio..... 6 " "	1856	98—	
Ditto..... 6 " "	1860	100—101	
Massachusetts... 5 " sterg.	1868	105—106	
Illinois..... 6 " "	1870	— — —	
South Carolina (Baring's)..... 5 " "	1858-68		
Do. (Palmer's)..... 5 " "	1866		
Maryland..... 5 " sterg.		90—91	
Miss. (Planter's Bank)..... 6 " "	1841-70	60—	
Ditto. Union..... 6 " "		19—20	
Alabama..... 5 " dollar	1863	66—67	
Ditto..... 5 " sterg.	1858-9-66	72—74	
Virginia..... 5 " "	1854	85—	
Ditto..... 6 " "	1857-73	95—96	
Kentucky..... 6 " "	1868	96—97	
Florida..... 6 " "		30—	

The effect of the news was to advance stocks generally in the New York market.

The iron trade continues depressed, without disposition to sell at any material abatement in price. The following are the present quotations, delivered in Liverpool:—Merchant bar £5 2s. 6d.; best rolled £6 15s.; railroad £6; hoop £7; sheet £7 15s.; No. 1 Scotch pig £2 12s.

The prices of cotton compared with those in '48 and '49 were as follows April 19th:—

	1850.	1849.	1848.
Bowed ordinary..... 6 a 6½	3½ a 4	3½ a 3½	
middling..... 6½ a 6½	4½ a 4½	3½ a 4	
fair..... 6½ a 7	4½ a 4½	4½ a 4½	
good fair..... 7½ a 7½	4½ a 4½	4½ a 4½	
good..... 7½ a 7½	5 a 5½	4½ a 5	
Orleans and Mobile.....			
ordinary..... 5½ a 6½	3½ a 4	3½ a 3½	
middling..... 6½ a 6½	4½ a 4½	3½ a 4½	
fair..... 7½ a 7½	4½ a 4½	4½ a 4½	
good fair..... 7½ a 7½	5 a 5½	4½ a 5	
good..... 7½ a 7½	5½ a 5½	5½ a 5½	
ch ginn'd marks. 8 a 9	5½ a 6½	6 a 7	
Surat ordinary..... 3½ a 4½	3 a 3½	2½ a 3	
middling..... 4½ a 4½	3½ a 3½	3½ a 3½	
fair..... 4½ a 4½	3½ a 3½	3½ a 3½	
good fair..... 4½ a 5	3½ a 3½	3½ a 3½	
good..... 5 a 5½	3½ a 3½	3½ a 3½	
Sea I. st. & sawginn'd. 6 a 9½	4½ a 7	4½ a 8	
ordinary..... 10½ a 11½	7½ a 8½	7½ a 8½	
middling..... 12 a 12½	8½ a 9	9 a 9½	
fair..... 13 a 13½	9½ a 10	10 a 10½	
good fair..... 14 a 15	10½ a 11	11½ a 12	
good and fine. 16 a 22	12 a 18	13 a 18	
Pernambuco..... 6½ a 7½	5 a 6½	5 a 6½	
Demarara..... 6½ a 7½	5 a 6½	5 a 6½	
Egyptian [ord to fair]. 6½ a 7½	5 a 6½	5 a 6½	
Ditto [good fair to fine] 7½ a 9½	6 a 8	6 a 7½	
West India..... 6 a 8	4 a 7	4 a 7	

The following paragraphs from Wilmer & Smith's European Times on the cotton trade, are of interest as indicating the restlessness of the public mind of England in relation to the probable consequences of the future policy of this country, when we shall become the exporters of manufactured cotton in room of sending abroad, to so great an extent, the raw material.

"The law of supply and demand is the leverage which moves the commercial world. When an indispensable article of consumption becomes scarce, the value, as a natural consequence, rises in the market, just as it falls in value when there is a superabundance. Applying this incontrovertible fact to cotton, you would imagine, to hear certain sapient persons talk, that they desired a bill of indictment against the whole of the southern planters, because they cannot control the seasons, and

furnish abundance of the raw material for all the spindles in the world. These grumblers forget that the grower can no more regulate the price of cotton than he can mete out the sunshine which feeds, or the frost which kills the plant. The southerners engaged in the cultivation of the staple might justly retort upon the lords of Cottonopolis in the language of the ancient Briton—'If Cæsar can hide the sun with a blanket, and put the moon in his pocket, we'll pay tribute to him for light.'

"At the same time, when the equilibrium of prices has been destroyed by any unlooked-for casualty—when exclusive dependence upon a particular country for an essential article of commerce is found to interfere with the legitimate course of capital and labor, it becomes not only necessary but imperative to look elsewhere for a supply fully equal to the requirements of the times, so as to be provided for every contingency; and in this spirit we can discern nothing to censure, but, on the contrary, much to commend in the pains which are now taken to procure a supply of cotton from other parts of the world, to compensate for the unquestionable deficiency of the American crop.

"Much has been said and written about the capabilities of India to send us as much cotton as we require, and to a certain degree of faith in the capacity of that country may be traced the anxiety with the public has watched the formation of Indian railways, and the eagerness with which their progress and completion have been regarded. The East India company has partaken largely of this feeling, and has extended a helping hand to two companies which have taken the field, and for which Acts of Parliament were passed in the last session. One of these companies will cut a line from Calcutta to Delhi; the other a line from Bombay to Kalliar, in the direction of the great cotton field of the Ghauts. These undertakings may be regarded as in practical operation, for the East India company has guaranteed a dividend on the outlay, which makes their completion a matter of certainty. A third line from Madras to Arcot is also projected: but whether it will struggle into existence is at present somewhat questionable. Nevertheless grave doubts exist whether the best internal communication in the world would enable India to grow cotton in quantities sufficient to affect the price in the home market. At present India grows little more than is required for its own consumption and the export trade to China; and as to quality it is impossible, under any circumstances, that the cotton of India can ever compete with the long staple of America.

"Port Natal is also mentioned with encouragement as a cotton growing district, but the smallness of the population, and the fact that no vessel has ever yet sailed from D'Urban, the only port in the colony, direct to England, shows that a long period must elapse ere its developments can produce tangible results.

"The most feasible scheme, of the many which have been broached, is one put forward by the owners of property in British Guiana. The West India Association, in their petitions to Parliament, as well as in their memorial to the Colonial Secretary, make out a strong case on behalf of the West Indies generally, and of Demerara more especially. The labor question is at the bottom of all our West Indian difficulties. Every plan adopted since the emancipation of the black population to secure a sufficiency of labor has failed, and the Association ask, through Mr. F. Shand, their chairman, permission to engage blacks on the coast of Africa on



the plan which the British factories on the river Bonny adopt with the natives of the Kroo coast—namely, to hire them, say for five years, at the expiration of which time they can return, if they desire it, to their native country. In the estimation of many persons, this would be equivalent to a renewal of the slave trade; but if similar arrangements were permitted in the case of the Coolies, and, in the one referred to—that of the Kroo blacks—we can see no sufficient reasons why precautions might not be taken on the African coast, as well as at Demerara, to protect the blacks who might willingly enter into these engagements, from the possibility of wrong or injury. To no higher practical end could the naval force which excites Mr. Hutt's antipathy be directed, and under judicious regulations the moral and physical condition of the laborers, instead of being deteriorated, would in reality be improved and elevated by the boon which the West India Association solicit at the hands of government and the country. If the experiment were tried in British Guiana, it might, if successful, be extended to the West India islands.

"In the meantime the southern planters of America, stimulated by the prices which now prevail, have every inducement to extend the cultivation of cotton with, if possible, increased power and capital. Probably the next crop may, in its amplitude, compensate for the shortness of the last one, and the outcry which now exists for other fields of cultivation in various quarters of the globe would, in the event of such a result correspondingly abate. But at the same time they will read the signs which are every day passing around them very imperfectly, if they do not perceive a fixed determination on the part of the merchants and manufacturers of this country and its government, to rely less exclusively than heretofore on the cotton of the United States. *Experientia docet.*"

With a wise system of protection to home industry, we believe the time is not far distant when we shall manufacture the major part of the cotton used in the United States. If the south should once embark her capital in this branch of industry, there is no limit that can yet be assigned to the extent of our wealth or our resources.

#### How we Purchase Iron for our Railroads.

In many parts of the country, in the west particularly, are our people engaged in the construction of railroads, who are exclusively occupied in agricultural pursuits, and who must purchase the iron for their roads by a sale of the products of their farms. Their only surplus consists in these articles, and consequently it is only by an exchange of them that they can procure such things as they stand in need of, and which they themselves do not produce. Consequently, so long as we import our iron from England, each section must obtain its supply by exchanging for it, its own appropriate productions. Take for instance the interior of Tennessee or Kentucky. Corn is one of the great staples of these States. We suppose that the average price of the crop of these States ranges from 12 to 20 cents per bushel. To export this corn to England costs from 50 to 75 cents per bushel; a sum four times at least as great as the cost of production. This cost of transportation comes directly out of the pocket of the producer. What is true of corn is equally true of all other agricultural products, though the cost of transportation may not bear so large a ratio to the value of the article.

The English manufacturer can afford to pay from 75 cents to one dollar per bushel for corn, and sell us iron at the low rate at which we are now buying

it. Now suppose that by some means the iron man and the western farmer could be placed side by side, and the iron manufacturer continued to pay in this country the same price he now pays in England for American flour and corn, how would the case stand then? Would our western people find any difficulty in purchasing any quantity of iron, so long as they could get 75 cents per bushel for their corn? At the present time, according to the doctrine of reciprocal free trade, the western farmer must or should supply the English manufacturer with the food for the support of his labor, at a cost many times greater than the cost of production. All paid for transportation is just so much absolutely lost, and might be saved if the producer and consumer occupied the same neighborhood.—We do not mean to say that corn would command in the west 75 cents per bushel, if iron manufacture should be extensively introduced there, because competition and ease of production would keep it below this point, but it would command perhaps twice its present price; and all other things being equal, the difference which the manufacturer should pay, over the price in England, would be so much additional profit. From this mode of reasoning, it is very easy to see why we can afford to pay more for iron of American manufacture than for the English article. In the former case we can sell direct to the manufacturer whatever we produce without any loss for transportation. In the latter case we must pay many times the cost of production, as the expenses of delivery of our products to the foreign consumer.

Now it is very certain that unless we commence the manufacture of rails our roads will bring us into commercial embarrassments. We are now sending abroad five millions dollars annually for the purchase of railroad bar alone. How much of this vast sum paid to the Englishman is made up of the expenses of transportation? How much is the real cost of production?

We were the more forcibly impressed with the importance of these views, in witnessing thro' the newspapers the efforts that the people of Northeastern Tennessee are making to construct a railroad from Knoxville to the Virginia State line, a distance something over 100 miles. The estimated cost of the projected work is \$2,000,000, for which they must mainly rely upon themselves. The route traversed by the proposed road is a comparatively isolated portion of the country, far removed from markets of all kinds, but possessing a most fertile soil, and vast quantities of coal and iron ore. Yet these people, if they can obtain sufficient means for their work, will go to England for their iron, and pay for it in corn at 12½ cents per bushel, while the manufacturer must pay six times that price.—Now is there not a great absurdity here? Would it not be better for these people to convert the products of their farms into iron manufactured at their own door, than to send it 4000 miles, at a vast expense, to undergo the same process? We think that there can be no doubt of it. There certainly can be none, unless it can be shown that iron can be manufactured in England cheaper than in this country, by the amount of the cost of transporting, both our agricultural products, and the iron itself.

The answer to this is, "we must purchase where we can buy cheapest." This is not the true rule to guide us. We should buy where we can pay easiest. Our ability to pay, and not the price of the article, should govern us. We have an abundance of everything required to support labor, but not money. Let our farmers buy their iron with what

their own farms produce, or what is the same thing, exchange the one for the other, at their own doors, rather than make the same exchange 4000 miles off subjected to the great expense attendant upon transportation.

What if the iron does cost more. From its superior quality it is worth 25 per cent. more. At the low prices we are now paying we get only the refuse of English iron. The English ask as much for their high priced iron as our own mills in this country. In proof of this we copy the following advertisement from one of our recent English railway exchange papers:

#### "Thornycroft's Patent Railway Axles, Rails and Railway Tyre.—Section No. 1, Half Size.

The middle, or wearing part of this tyre is composed of chrysaline charcoal iron, the hardest and soundest iron made. The outward edges are made from a mixture of India charcoal pig with the toughest fibrous iron—the whole made upon an improved principle into one homogeneous mass.

These charcoal tyres are warranted better and more durable than any tyres made in England.

Price £15 per ton net at the works, up to 3½ cwt. each.

#### Railway Tyre, Section No. 2, Half Size.

The middle, or wearing part of this tyre is composed of the best refined chrysaline puddled iron.—The outward edges are of the best No. 3 fibrous iron, and put together upon an improved principle into one homogenous mass. The tyres are warranted quite equal to any made in Staffordshire.

Price £10 10s. per ton net at the works, up to 3 cwt. each.

Best Staffordshire Tyres £8 10s. per ton at the works, up to 3 cwt. each.

#### Patent Antilaminating Charcoal Rail.—Section No. 1, Half Size.

Price £10 per ton net at the works.

Patent Antilaminating Rails, made from the same quality as the best price £7 10 per ton net at the works.

The upper, or wearing part of these two sections of rails is made from antilaminating charcoal iron, much harder than any other iron, perfectly free from lamina. The under, or fibrous part from best No. 3 puddled iron.

#### Section No. 2, Half Size.

Price £10 per ton net at the works.

Patent Antilaminating Rails, made from the same quality as the best, price £7 10 per ton net at the works. Rails of the same sections are made from puddled iron, quite free from lamina in the wearing part, but soft and less durable than charcoal rails. The principle is applicable to any kind of rails.

The above is the advertisement of a leading English manufacturer, whose name is well known to our iron men. Is it not decisive evidence that it is for our interest to manufacture our own iron.

#### Machinery Oil.

WE the undersigned are now manufacturing an oil intended for the use of Railroads, Steamers and Manufacturing establishments. It has been in use several months and has given very general satisfaction. Our price is uniformly 70 cts. per gallon. Enquiries or orders attended to promptly. Address

ROBBINS, LANGDON & CO.

133 Water street, corner Pine, New York.

#### CERTIFICATES.

Providence, March 22d, 1850.

Messrs. Robbins, Langdon & Co.,

Gentlemen: We have given your machine oil a thorough trial, and find that it possesses all the qualities that we could wish. as it works better than any sperm oil we have ever used. Our shafts that required oiling four times a day with the best sperm oil that we could get, work equally as well by the application of your oil twice a day, and your oil stands cold weather much better than any oil we have ever used. Our engineer having had years' experience in running and making engines, we put great confidence in his judgment, and he gives it as his opinion that your oil is fully equal to if not better than any he ever used; and we shall soon give you an order for more, as we do not want any other kind of oil as long as we can get yours.

Very respectfully yours,  
JACKSON, CLARK & CO.

Steamer Bay State, Oct. 22d, 1849.  
Messrs. Robbins, Langdon & Co.,

Gentlemen: In answer to your request for my testimony as to the machinery oil manufactured by you, I will say that I have used it for some time past on the Bay State, and am perfectly satisfied that your statement to me of its good qualities, is correct. As far as its lasting properties go, it wears equally long as sperm oil, runs perfectly free, and has no appearance of thickening. As seeing is better than hearing, I would recommend you to send your friends on board our boat, and they can then, by ocular demonstration, judge for themselves. Yours respectfully, **JOHN GRAY**,  
Engineer of Steamer Bay State, Pier 3, N.R.

Steamboat Knickerbocker, Sept. 22, 1849.  
Gentlemen: Mr. Hall, Agent of the Norwich and New London Steamboat Co., placed in my hands some of your machinery oil, which he desired me to use on the engine and other machinery, which I have done, and was so much pleased with the working, that I recommended the owners to give you their orders.

I have been using the article since August 19, and with perfect satisfaction, and I am well satisfied that your oil is as good as the best of sperm for lubricating machinery. I am yours very respectfully,  
**SAMUEL CARTER**

Engineer of Steamboat Knickerbocker, Pier 18, N.R.  
To Messrs. Robbins, Langdon & Co.,  
Oil Merchants, 133 Water street, New York.

Steamboat Worcester, N. York, Oct. 15, 1849.  
Messrs. Robbins, Langdon & Co.,

Gentlemen: I beg to acknowledge the receipt of your letter requesting my opinion as to your oil for machinery, which I had not time to reply to previous to my return to Norwich. I have been using your oil on the engine and machinery of the Worcester with perfect success, and have much pleasure in testifying as to its good qualities. In my opinion, the journals keep cooler with your oil than with sperm, and it wears equally well. Should you at any time wish to refer to me as to your oil, I beg you will do so without hesitation. Yours respectfully, **JAS. CROOKER**,  
Engineer Steamboat Worcester, Pier 18, N. R.

New York, August 3d, 1849.  
Messrs. Robbins, Langdon & Co.,

Gentlemen: I received your letter in regard to your oil for machinery, which I handed to our engineer, and have much pleasure in sending you an extract from his letter to me on the subject: "I have applied the oil sent me upon our hot journals and cylinders, and find that they keep cooler with it than with sperm oil. I cannot find any fault with the oil, although I have watched it carefully. I have also tried it against an equal quantity of sperm oil, and find it wears quite as well." You are quite at liberty to show this extract to your friends, and shall be happy to give any further certificate you may require. **WM. RIDER**,  
Treasurer Union India-rubber Co., 19 Nassau st. N. Y.

New York, March 22d, 1850.  
Messrs. Robbins, Langdon & Co.,

Gentlemen: I have been using your machinery oil on the engine and other machinery of the Steamer Southerner running from this to Charleston, and find it equal to sperm oil. I shall continue the use of the same, and you are at liberty to refer to me at any time. Yours respectfully, **DAVID N. MAXON**,  
Chief Engineer Steamer Southerner.

Steamboat C. Vanderbilt, N. York, Oct. 11, 1849.  
Messrs. Robbins, Langdon & Co.,

Gentlemen: In reply to your inquiries respecting the qualities of your machinery oil, I am happy to inform you that I have been using the article sent me for some time past, not only on the engine but on all other machinery connected with it: and from a careful and close examination, I am well satisfied that your oil is as good as the best of sperm oil for lubricating machinery. I have recommended Mr. Lockwood the agent of the company, to give you their orders. Yours respectfully, **JAMES BAKER**,  
Engineer Steamboat C. Vanderbilt, Pier 3, N.R.

Brooklyn, August 29, 1849.  
Messrs. Robbins, Langdon & Co.,

Gentlemen: Your letter of the 29th was received, and I am happy to inform you that I have used your machinery oil throughout my establishment, and I am still of the opinion that it is as good as the best of sperm oil for lubricating machinery. I should be pleased at any time to have your friends witness the working, and I am sure, after once doing so, will give you their orders. Please send me another cask by the evening of the 3d, and by so doing you will much oblige,  
**W. M. BURDON**, Manufacturer of  
Steam Engines and other Machinery, 102 Front st.

A young man of experience in Surveying wishes a situation on a Railroad as an Assistant. Please apply at this office.

**Spikes, Spikes, Spikes.**  
ANY person wishing a simple and effective Spike Machine, or a number of them, may be supplied by addressing  
**J. W. FLACK**,  
Troy, N. Y.  
March 6, 1850.

**8,000 Tons Railroad Iron.**  
THE OHIO AND PENNSYLVANIA RAILROAD CO. wish to contract for eight thousand tons of Railroad Iron, for the eastern division of their road, extending westward from Pittsburgh. Three thousand tons to be delivered on the Ohio river at Pittsburgh and Beaver, before the close of canal navigation in the present year, 1850; and the remainder in the spring of next year. The rails are to be of the H pattern, in lengths of 20 feet, and are to weigh 60 lbs. per lineal yard. They are to be subject to the inspection of Solomon W. Roberts, Chief Engineer. For further particulars address the President of the Company at Pittsburgh.  
By order of the Board of Directors.  
**WM. ROBINSON, JR.**, President.

**To Contractors.**  
THE TROY AND RUTLAND RAILROAD CO. will receive PROPOSALS for constructing 17 miles of their road, from Salem to the Hoosack river, on the 16th of May next, and decide upon such proposals on the 20th day of May. The necessary information in relation thereto can be had on and after the 26th inst., by application to the undersigned at his office in Salem, Washington Co., N. Y.  
**C. L. PRESCOTT**, Chief Engineer.  
April 23d, 1850.

**Notice to Contractors.**  
CENTRAL OHIO RAILROAD.  
THE Line of this road between Zanesville and Newark, a distance of about 26 miles, will be ready for examination about the 1st of May next, and Sealed Proposals for the Graduation, Masonry and Bridging of the said road will be received at the office of the company, in Zanesville, until the 20th of May next.

The graduation must be completed by the 1st day of January next—the masonry by the 1st day of June, 1851—and the superstructure of the bridges by the 1st day of July, 1851. The wood work of the bridges not to be commenced until the 1st of January next.

This work will embrace some heavy rock cutting; two bridges across the Pataskala or Licking river, and one across its north branch, also several important cuts and embankments.

The bids may be predicated either upon CASH payments entirely, or upon 75 per cent. cash, and 25 per cent. in the stock of the company.

To contractors at a distance, it may be as well to observe that this work is a part of the Great Central Line, projected as an extension of the Baltimore and Ohio Railroad, from the Ohio river to Central and Western Ohio and Indiana.

The company hope to have the line from Newark to Columbus, 34 miles, ready for examination by the 15th of June next, and for contract by the 1st of July next.  
By order of the Board.

**ROBERT MAC LEOD**,  
Engineer in Charge.  
Zanesville, April 18, 1850.

**Notice to Contractors.**  
Bellefontaine and Indiana Railroad.  
SEALED PROPOSALS will be received at the Company's Office in SIDNEY, Shelby Co., Ohio, on and after Wednesday, May 5th, 1850, for doing the Grubbing, Clearing, Grading and Masonry, of such portions of the BELLEFONTAINE AND INDIANA Railroad, as can be prepared for letting by the 15th.

The line extends from some point on the Cleveland, Columbus and Cincinnati Railroad, through MARION, BELLEFONTAINE and SIDNEY, to the STATE LINE, between Ohio and Indiana, a total distance of about 120 miles.

It is expected that the line from the eastern terminus to Marion, about 22 miles, and from Bellefontaine to Sidney, about 23 miles, will then be ready to let; and the remainder of the route as soon thereafter as it can be located and prepared.

Specifications and plans will be ready for inspection and all necessary information may be obtained on application at the Office of the Chief Engineer, in Marion, or to J. Pemberton, Resident Engineer, in Sidney, after the 5th of May.

By order of the Board of Directors.  
**W. MILNOR ROBERTS**, Chief Eng.  
Engineer's Office, Marion, Ohio,  
March 18, 1850. } 15tf

## Railroad Iron Wanted.

Virginia and Tennessee Railroad Office,  
Lynchburg, Va., March 16, 1850.

PROPOSALS will be received at this Office until the 6th of May next, for the delivery in Lynchburg, of Iron Rails for the Virginia and Tennessee Railroad, to be manufactured in or near this town of Virginia Iron.

The said Iron to be made of the best pig metal, and to be delivered at the following times, and in the following quantities, viz: Six thousand tons in the year 1851, and the remainder (about 15,000 tons) for the whole road, equally, in the years 1852 and 1853.

Separate proposals will also be received for the delivery in Lynchburg, of pig metal, at times and in quantities sufficient for the manufacture of the rails above mentioned, said delivery to commence as early as the first of November, 1850.

The rails and the pig metal will be subjected to strict inspection; the rails are to weigh about 60 lbs. per yard.

At the same time, proposals will be received for the above quantity of Iron, manufactured any where else in America or in England, to be delivered in Lynchburg or Richmond, under the same general conditions as those prescribed for Virginia Iron, manufactured at Lynchburg. Satisfactory security will be required.

Proposals for delivering any portion of the above mentioned quantity, and at periods varying from those specified above, will be considered.

By order of the Board of Directors.  
**CHAS. F. M. GARNETT**,  
Chief Engineer.  
15tf

**To Contractors.**  
SEALED PROPOSALS will be received at the Office of the Nashville and Chattanooga Railroad Company in Chattanooga until the 20th day of May next, for the graduation and masonry of the Chattanooga Division of said Road—embracing a distance of 27½ miles.

The graduation will be heavy for about 15 miles, (in crossing Raccoon Mountain, and passing around Lookout Mountain bluffs), the balance, average work. The masonry will consist chiefly of cut stone Piers for Tennessee River Bridge, (about 4,000 Perches,) Piers for running Water Bridge, (about 2,000 Perches), and Pier for Lookout Creek Bridge, about 500 Perches.

Sealed proposals will also be received at the same time and place, for the graduation of 10 miles of the Eastern end of the Winchester Division—embracing some heavy work. Also the masonry of Elk River and Widow's Creek Bridges.

Plans and Profiles of the Work will be exhibited, specifications furnished, and all other desired information given, on application to Mr. James A. Corry, the Engineer in charge of the work, at the Company's Office in Chattanooga, from the 10th of May until the day of letting.

Before making bids the line should be thoroughly examined. The depths of the Cuts and Embankments can be ascertained from the centre stakes. The work to be commenced immediately after the letting. And that portion from Chattanooga to Lookout Bluffs to be completed by the 1st of December next. The other sections to be finished successively on toward the West end of the Division—the last by the 1st of October, 1851.

The most satisfactory testimonials will be required. The payments will be made in cash—reserving the usual 20 per cent. until the completion of the work.

By order of the Board.  
**JAMES H. GRANT**, Chief Eng.  
Nashville, Tenn., March 14, 1850.

PROPOSALS will be received at the offices of the Baltimore and Ohio Railroad Company, at Baltimore, Cumberland and Wheeling, up to Wednesday, the 22d day of May next inclusive, for the graduation and masonry of the portion of that road, extending from the bridge on the northwestern turnpike, over the Tygart's valley river, to a point on the south fork of Fish creek, near the mouth of Long Drain, embracing some 56 sections. Also the 8 sections between the mouth of Grave creek and the city of Wheeling.

A variety of work will be presented by the line to be let, which will include light and moderately heavy grading. Several short tunnels, and a considerable amount of bridge masonry.

Specifications may be had at the above named offices on and after the 1st of May ensuing, and further information obtained from the engineer upon the line.

Unexceptionable testimonials of character must accompany the bids, and the bidders are requested to state what other work, if any, they are engaged in, and when it will be completed.

The work must be energetically prosecuted.  
By order of the President and Directors.  
**BENJ. H. LATROBE**, Chief Engineer.  
Baltimore, April 10, 1850. } 16



## Great American Engineering AND MECHANICAL WORK, just published in medium folio, 75 cts.

Part IV of "Specimens of the Stone, Iron and Timber Bridges, Viaducts, Tunnels, &c. &c. of the United States Railroads." By George Duggan, Architect and Civil Engineer.

The present part contains beautifully executed plans, and elevations, of the Starucca, Pa., (stone) Viaduct of 17 arches, 50 feet span each, grade line averaging 90 feet above the valley bed, with the specifications, estimates, &c. &c. Also plates of the details of the timber and iron work of the elegant timber arch 275 feet span, at Cascade Creek, Pa. on the line of the N. Y. & Erie R. R.

N.B.—This work is published by subscription of the most eminent in the engineering profession of the U. States, and will be completed in 12 parts, at 75 cents each to those who remit their names and subscriptions before the 1st June next—when the first 6 parts or one half of the work will be published—after which the price will be raised to \$1 per part.

To those making a present remittance of \$5, and the remainder \$4, when they have been supplied with the first six parts, the work will be forwarded regularly as published. Parties remitting \$9 shall receive it monthly post-free in any part of the United States.

"It is a work that was a great desideratum, and must prove of great benefit to the engineering profession generally, and especially to the tyro in practical engineering and mechanical knowledge; in truth it strikes us, that it would require years of labor and patient toil on the part of a young engineer to prepare the drawings, and collect the information that will be embodied in this work, and can now be secured for the trifling sum of \$9"—(Scientific Amer. March 16, 1850.)

In connection with this subject (Iron Railroad Structures) we take occasion to call attention again to Mr. Duggan's valuable and expensive publication, exhibiting drawings, with full descriptions of the various stone, iron and wooden bridges, viaducts, tunnels, culverts, etc., of all the Railroads in the United States. Mr. Duggan is an accomplished Architect and Civil Engineer, who came from Ireland to this country to exercise his profession; but finding Railroad construction here, in many respects, different from that he had been accustomed to in Europe, he applied himself to the study of our system; and the fruits of his researches and investigations embodied in this work, are well calculated to meet the exigencies of engineers, and to assist draughtsmen, bridge builders, mechanics and students. The work will be supplied to subscribers only, in 12 parts, at 75 cents each.—(N. Y. Journal of Commerce, Feb. 14, 1850.)

Published by

GEORGE DUGGAN,  
300 Broadway, New York.

To whom all communications should be addressed, and subscriptions forwarded.

## FOWLER M. RAY'S Patent India-rubber Railroad CAR SPRING.

New York and Erie Railroad Shops,  
Piermont, March 26, 1850.

This will certify that from practical experience in the use of Fowler M. Ray's India rubber Car Springs, I believe them to be far superior to any others now in use.

I have never known them to be affected by any change of temperature, as other Rubber Springs have been affected on this road.

I am at the present time repairing a Passenger Car that Mr. Ray and myself mounted with his springs about two years and eight months since.

The springs are at the present time as perfect, to all appearances, as when first applied to the car.

Respectfully yours,

HORACE B. GARDNER,  
Foreman of the Car Shops.

Supt. Office N.Y. & H. R.R.,  
New York, March 8, 1850.

This is to certify that we have used the Rubber Springs manufactured by Mr. F. M. Ray for the past twenty months, "both for Passenger and Freight Car Springs and Bumpers, and of different sizes" and have in every case given entire satisfaction, and I consider them the best spring now in use.

M. SLOAT, Supt.

Harlem R.R. Depot,  
New York, March 7, 1850.

This is to certify that we have used Mr. F. M. Ray's India-rubber Springs for over eighteen months, and find them to be easy and durable, and recommend them to railroad companies as being superior to anything we have tried.

J. M. SMART,  
Foreman at 42d St. Depot.

Office of the New Jersey Railroad Co.,  
Jersey City, March 7, 1850.

This is to certify that we have had Mr. F. M. Ray's India-rubber Springs in constant use under our cars, and as Bumper Springs for upwards of two years, and they have in every way given perfect satisfaction.

The present form of spring we deem far superior to the form of Disk, having used both forms, although we have none of those made in Disks at present in use.

We take pleasure in recommending these springs to all railroad companies.

J. P. JACKSON, Vice Prest.  
New Jersey Railroad and Trans. Co.

Roxbury, February 23, 1850.

In compliance with your request, I take great pleasure in stating the result of my experience in the use of "Ray's Patented Vulcanised India-rubber Car and Engine Springs." We have used them nearly two years, and never had one fail in any way. The cold weather does not affect them, as it has other rubber springs we have used.

With sixteen years' experience as superintendent of machinery on the Boston and Providence railroad, I take pleasure in saying that your springs are the best we ever used, or I ever saw used elsewhere. We have 20 cars rigged with them, of which I can say that the springs are as good now as when first applied. I put 24 lbs. of the rubber under the forward end of one of our heaviest engines, taking off 250 lbs. of steel springs—it has been in use 18 months, and is in as good condition now as when first put under the engine.

Very respectfully yours,

GEO. S. GRIGGS,  
Supt. of Machinery, Boston and Prov. R.R.

New York, March 11, 1850.

I have used the Patent India-rubber Spring purchased of Mr. Ray, upon the cars of the New York and New Haven Railroad, and have found them efficient and economical; and when applied to the axles and draw springs, believe them to be quite equal to any in use. I have found a combination of these springs with a steel spring under the transom beam a very satisfactory arrangement, and am now using this plan in all new cars.

Yours respectfully,  
ROBERT SCHUYLER.

February 25, 1850.

From practical observation of the use of the India-rubber Car Springs, manufactured and sold by your company, we are entirely satisfied in their application, and do not hesitate to recommend them as elastic, durable, requiring no repairs for years, and retaining their consistency during all extremes of weather. We have applied them for the past two years, and consider them superior for all railroad purposes.

Yours truly,

OSGOOD BRADLEY, Car Builder, Worcester.  
T. & C. WASON, do. Springfield.  
DEAN, PACKARD & MILLS, do. do.  
DAVENPORT & BRIDGES, do. Cambridgeport.

Office New Jersey Railroad Co.,  
Jersey City, March 8, 1850.

FOWLER M. RAY, Esq.,  
Dear Sir: In answer to your enquiries respecting the operation of the Vulcanised Rubber Springs, purchased by our company from you some two years since, I reply that they are superior to any spring in use, (that I have either seen or heard of).

The improved form of your spring, consisting of a solid piece of vulcanised rubber with bands on the outside, is far superior to your first form, consisting of disks of rubber with metallic plates interposed.

The last named form was tried, if you recollect, at a much earlier period; and then was replaced by your last form.

I have no hesitation in saying that your springs have given entire satisfaction, and most cheerfully recommend them to railroad companies throughout the country for the following reasons:

- 1st. The cost is 30 per cent. less.
- 2d. Saving of weight on each car of 8 wheels from 700 to 800 lbs.
- 3d. Less care and attention is required, as they are not liable to get out of repair.
- 4th. A great saving is secured in the wear and tear of the cars and rails from their great elasticity.
- 5th. The freedom from noise.
- 6th. There is greater safety in case of accident, as they cannot be broken.
- 7th. The comfort of passengers is enhanced sufficiently to pay the expense, waiving all the other reasons that I have given.

Should this fail to satisfy any person enquiring, you are at liberty to refer to me, No. 150 Washington St., Jersey City.

Yours respectfully,  
T. L. SMITH, Supt.

Fall River, February 2, 1850.

In answer to yours of the 20th ult. I would say that this company has for some 10 or 12 months past been using "Ray's India-rubber Springs." We have applied them to both passenger and freight cars with uniform success. They have invariably preserved their elasticity and consistency through all the extremes of weather; and we are now applying them whenever the steel spring fails. I am well satisfied that they are particularly adapted for railroad purposes.

Very respectfully yours,

GEO. HAVEN,  
Supt. Fall River Railroad.

Jersey City, March 9, 1850.

This is to certify that the present form of Mr. F. M. Ray's India-rubber Car Spring I consider far superior to the form of Disk, having used both forms.

I take pleasure in recommending these springs to all railroad companies.  
DAVID H. BAKER,  
Foreman of Car Shop of N.J. R.R. & Trans. Co.

Boston, March 5, 1850.

In answer to your enquiry about India-rubber Springs, I have to say that we have used them to a considerable extent on both freight and passenger cars, and also on several of our tenders; and I am very well satisfied that they answer all the purposes for which they are intended. I believe the India-rubber will soon supersede all other springs for cars and tenders.

Yours truly,

S. M. FELTON,  
Supt. Fitchburg Railroad.

Old Colony Railroad Office,  
Boston, March 6, 1850.

EDWARD CRANE, Esq.,

President New England Car Co.,

Dear Sir: In compliance with your request I would state that the Old Colony Railroad Comp'y have had in use upon their road, India-rubber Springs furnished by your company, for more than eighteen months past, during which time they have been extensively used under Passenger and Freight Cars, Locomotive Tenders, and for Drawer and Buffer Springs, with the most perfect success. The elasticity and consistency of the Rubber has never been unfavorably affected by either extremes of heat or cold—and from the experience which we have had in the use of Rubber Springs, I think them well adapted for railroad purposes—and therefore we have for some months past used Rubber almost exclusively, in all places where springs are required.

Respectfully yours, etc.,

JAS. H. MOORE,  
Supt. O. C. Road.

Troy, February 27, 1850.

We have been using your India-rubber Car Springs for nearly two years—and we take pleasure in saying that in our opinion the rubber has to a certain extent already, and may eventually entirely supersede all other Springs for Railroad Car purposes. We now use it entirely for Draw Springs and Bumpers, considering it better and lighter than steel.

During our two years' experience in the use of it, we have not known any to lose their elasticity, or fail in any way; and we cheerfully recommend the rubber for railroad car springs. Very respectfully,  
EATON, GILBERT & CO.

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November 3, 1849.

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This book has been compiled somewhat on the plan of Bradshaw's Guide, with such improvements in size, form and arrangement as have seemed desirable; and the publisher confidently hopes it will not be found liable to the objections of incompleteness and incorrectness, which have been made, and justly too, against various other similar works heretofore issued.

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**Atkinson, T. C.,**  
Alexandria and Orange Railroad, Alexandria, Va.

**Bancks, C. W.,**  
Civil Engineer, Vicksburg, Miss.

**Berrien, John M.,**  
Michigan Central Railroad, Marshall, Mich.

**Buckland, George,**  
Troy and Greenbush Railroad.

**Clement, Wm. H.,**  
Little Miami Railroad, Cincinnati, Ohio.

**Cozzens, W. H.,**  
Engineer and Surveyor, St. Louis, Mo.

**Alfred W. Craven,**  
Chief Engineer Croton Aqueduct, New York.

**Davidson, M. O.,**  
Eckhart Mines, Alleghany Co., Maryland.

**Fisk, Charles B.,**  
Cumberland and Ohio Canal, Washington, D. C.

**Felton, S. M.,**  
Fitchburgh Railroad, Boston, Mass.

**Floyd-Jones, Charles,**  
South Oyster Bay, L. I.

**Gzowski, Mr.,**  
St. Lawrence & Atlantic Railroad, Montreal, Canada.

**Gilbert, Wm. B.,**  
Rutland and Burlington Railroad, Rutland, Vt.

**Grant, James H.,**  
Nashville and Chattanooga R. R., Nashville, Tenn.

**Harry, P.,**  
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**S. W. Hill,**  
Mining Engineer and Surveyor, Eagle River,  
Lake Superior.

**Holcomb, F. P.**  
Southwestern Railroad, Macon, Ga.

**Johnson, Edwin F.**  
New York and Boston Railroad, Middletown Ct.

**Latrobe, B. H.,**  
Baltimore and Ohio Railroad, Baltimore, Md.

**Miller, J. F.,**  
Worcester and Nashua Railroad, Worcester, Mass.

**Morris, Elwood,**  
Schuylkill Navigation, Schuylkill Haven, Pa.

**Morton, A. C.,**  
Atlantic and St. Lawrence Railroad, Portland, Me.

**McRae, John,**  
South Carolina Railroad, Charleston, S. C.

**Nott, Samuel,**  
Lawrence and Manchester Railroad, Boston,

**Prichard, M. B.,**  
East Tennessee and Georgia R. R., Cleveland, Tenn.

**Roebbling, John A.,**  
Trenton, N. J.

**W. Milnor Roberts,**  
Bellefontaine and Indiana Railroad, Marion, Ohio.

**Roberts, Solomon W.,**  
Ohio and Pennsylvania Railroad, Pittsburgh, Pa.

**Sanford, C. O.,**  
South Side Railroad, Virginia.

**Schlatter, Charles L.,**  
Northern Railroad (Ogdensburg), Malone, N. Y.

**Sours, Peter,**  
Rahway, New Jersey.

**Stark, George.,**  
Bost., Con. and Mont. R. R., Meredith Bridge, N. H.

**Steele, J. Dutton,**  
Pottstown, Pa.

**Trimble, Isaac R.,**  
Philad., Wil. & Baltimore Railroad, Wilmington, Del.

**Tinkham, A. W.,**  
United States Fort, Bucksport, Me.

**Thomson, J. Edgar.,**  
Pennsylvania (Central) Railroad, Philadelphia.

**Troost, Lewis,**  
Alabama and Tennessee Railroad, Selma, Ala.

**Whipple, S.,**  
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" Barston, Pope & Co., "  
" Earps & Brink, Philadelphia.  
" E. Pratt & Brother, Baltimore.  
John Barstow, Esq., Providence.  
Lewis Bullard, Esq., Boston.  
February 9, 1850. 6m\*

### United States Railroad Guide and Steamboat Journal.

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CIVIL AND MINING ENGINEER AND AT-  
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by J. COWLES, 37 Wall St., N. Y.



**Railroad Car Manufacturer's  
Furnishing Store.****F. S. & S. A. MARTINE,**

IMPORTERS AND MANUFACTURERS OF

**RAILROAD CAR &  
CARRIAGE LININGS,**PLUSHERS, CURTAIN MATERIALS, ETC.,  
112 WILLIAM ST., NEAR JOHN.3-4 and 6-4 Damasks, Union and Worsted; Mo-  
reens, Rattinette, Cloths, Silk and Cotton Velvets,  
English Bunting**To Engineers and Surveyors.**E. BROWN AND SON Mathematical inst. mak-  
ers No. 27 Fulton Slip, New York, make and keep  
for sale, Theodolites, Levelling inst., Levelling rods,  
Surveyors Compasses, and Chains, Cases of Mathe-  
matical drawing insts. various qualities, together with  
a general assortment of Ivory Scales and small insts.  
generally used by Engineers.**Samuel Kimber & Co.,  
COMMISSION MERCHANTS**

WILLOW ST. WHARVES, PHILADELPHIA.

AGENTS for the sale of Charcoal and Anthracite  
Pig Iron, Hammered Railroad Car and Locomo-  
tive Axles, Force Pumps of the most approved con-  
struction for Railroad Water Stations and Hydraulic  
Rams, etc., etc.

July, 27, 1849.

**James Herron, Civil Engineer,**

OF THE UNITED STATES NAVY YARD,

PENSACOLA, FLORIDA.,

PATENTEE OF THE

**HERRON RAILWAY TRACK.**Models of this Track, on the most improved plans,  
may be seen at the Engineer's office of the New York  
and Erie Railroad.**To Railroad Companies.**—WROUGHT IRON WHEELS—  
SAFETY AND ECONOMY.**NORRIS' LOCOMOTIVE WORKS,  
SCHENECTADY, NEW YORK,**Are Manufacturing Wrought Iron Driving, Truck,  
Tender, and Car Wheels—made from the best Ameri-  
can Iron. Address E. S. NORRIS.  
May 16, 1849.**Machinery Warehouse.**S. C. HILLS, No. 43 Fulton street, New York, has  
constantly for sale Steam Engines, Boilers, Lathes,  
Chucks, Drills, Planers, Force and Suction Pumps;  
Tenoning, Morticing and Boring Machines, Shingle  
Machines, Bolt and Nut Machines, Belting, Oil, Iron  
and Lead Pipe; Rubber, Percha and Leather Hose,  
&c., &c.S. C. H.'s arrangements with several machine shops  
are such that he can supply, at very short notice, large  
quantities of machinery.

November 23, 1849.

**George O. Robertson,  
BROKER IN SCOTCH AND  
AMERICAN PIG IRON;**

Bar Iron, Lead, Spelter, Tin, Copper, etc.,

No. 4 Liberty Place, MAIDEN LANE,

(Near Broadway.)

NEW YORK

**Manufacture of Patent Wire  
ROPE AND CABLES,**For Inclined Planes, Suspension Bridges, Standing  
Rigging, Mines, Cranes, Derrick, Tilters, &c., by

JOHN A. ROEBLING, Civil Engineer,

TRENTON, N. J.

**Samuel D. Willmott,  
MERCHANT, AND MANUFACTURER OF  
CAST STEEL WARRANTED SAWS,**

—AND FILES—

IMPORTER OF THE

GENUINE WICKERLY GRINDSTONES

NO. 8 LIBERTY STREET,

NEW YORK.

**Doremus & Harris,  
ANALYTICAL & CONSULTING CHEMISTS,  
179 BROADWAY, NEW YORK.**

SCHOOL OF CHEMISTRY.

**IRON.****Railroad Iron.****3,000** TONS C. L. MAKE 63½ lbs. per yard,  
now landing and to arrive.Also contracts made for future delivery of above su-  
perior make English Iron.

300 Tons Banks Best Iron, Round, Square and Flat.

200 " English Bar " " " "

10 " 9-16 Square Iron for Railroad Spikes.

For sale in lots to suit purchasers by

DAVID W. WETMORE.

New York, March 26, 1850. 3m

**SPRING STEEL FOR LOCOMOTIVES, TEN-  
DERS AND CARS.**—The subscriber is engaged  
in manufacturing spring steel from 1½ to 6 inches in  
width, and of any thickness required: large quantities  
are yearly furnished for railroad purposes, and wher-  
ever used its quality has been approved of. The estab-  
lishment being large, can execute orders with great  
promptitude, at reasonable prices, and the quality war-  
ranted. Address J. F. WINSLOW, Agent,  
Albany Iron and Nail Works.**Railroad Iron.**THE Undersigned, Agents for Manufacturers, are  
prepared to contract to deliver Rails of superior  
quality, and of any size or pattern, to any ports of dis-  
charge in the United States.

COLLINS, VOSE &amp; CO.

158 South St.

New York, November 17, 1849.

**Railroad Iron.**

1,500 Tons weighing 53 lbs. per lineal yard.

500 " " 57 " " "

500 " " 56 " " "

500 " " 60 &amp; 61 lbs. "

Also 2½x½ flat rails. All the above being of approv-  
ed patterns. For sale by

DAVIS, BROOKS, &amp; CO.,

68 Broad street.

N.B.—Rails imported on commission, or at a fixed  
price.**Iron.**Pig Iron, Anthracite and Charcoal; Boiler and Flue  
Iron, Spring and Blistered Steel, Nail Rods, Best Re-  
fined Bar Iron, Railroad Iron, Car Axles, Nails, Stove  
Castings, Cast Iron Pipes of all sizes, Railway Chairs  
of approved patterns for sale by

COLEMAN, KELTON &amp; CAMBELL,

109 N. Water St., Philadelphia.

**IRONDALE PIG METAL, MANUFACTURED**  
and for sale by the Bloomsburg Railroad Iron Co.

DUDLEY FISHER, Treasurer.

75 N. Water St., Philadelphia.

**Railroad Iron.****500** Tons, afloat, weighing 57 pounds per lineal  
yard, for sale by

COLLINS, VOSE &amp; CO.,

158 South St.

New York, November 17, 1849. 1m46

**Railroad Iron.****1675** Tons, weighing about 61 lbs. per yard, 90  
tons, weighing about 52 lbs. per yard, and  
825 tons, weighing about 53½ lbs. per yard, of the lat-  
est and most approved patterns of T rail, for sale by

BOORMAN, JOHNSTON &amp; CO.,

119 Greenwich street.

New York, Feb. 25, 1850.

N.B.—B., J. & Co are also prepared to take con-  
tracts for English rails, delivered in any of the Atlan-  
tic ports of the United States.**Railroad Iron.**THE UNDERSIGNED, HAVING made arrange-  
ments abroad, are prepared to contract for the de-  
livery of Foreign rails, of approved brands upon the  
most favorable terms.They will also make contracts for American rails,  
made at their Trenton works, from Andover Iron, in  
whole or in part, as may be agreed upon.They are prepared to furnish Telegraph, Spring and  
Market Wire; Braziers and Wire Rods; Rivets and  
Merchant Bars to order, all made exclusively from An-  
dover Iron. The attention of parties who require iron  
of the very best quality for special purposes, is respect-  
fully invited.

COOPER &amp; HEWITT,

17 Burling Slip, New York.

February 15, 1850.

**Glendon Refined Iron.**Round Iron, Band Iron, Hoop Iron,  
Square " Flat " Scroll "

Axles, Locomotive Tyres,

Manufactured at the Glendon Mills, East Boston, for  
sale by

GEORGE GARDNER &amp; CO.,

5 Liberty Square, Boston, Mass.

Sept. 15, 1849. 3m37

**PATENT HAMMERED RAILROAD, SHIP &  
BOAT SPIKES.**—The Albany Iron Works  
have always on hand, of their own manufacture, a  
large assortment of Railroad, Ship and Boat Spikes  
from 2 to 12 inches in length, and of any form of head  
From the excellence of the material always used in  
their manufacture, and their very general use for rail-  
roads and other purposes in this country, the manu-  
facturers have no hesitation in warranting them fully  
equal to the best spikes in market, both as to quality  
and appearance. All orders addressed to the subscrib-  
ers at the works will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.

The above Spikes may be had at fact: 17 prices, of  
Erastus Corning & Co Albany; Merritt & Co., New  
York; E. Pratt & Br: 1 et, Es: 2 more, Md.**LAP—WELDED  
WROUGHT IRON TUBES**

FOR

**TUBULAR BOILERS,**FROM ONE AND A QUARTER TO SEVEN  
INCHES IN DIAMETER.THE ONLY Tubes of the same quality and man-  
ufacture as those so extensively used in England,  
Scotland, France and Germany, for Locomotive, Ma-  
rine and other Steam Engine Boilers.THOMAS PROSSER & SON, Patentees,  
28 Platt street, New York.**Railroad Iron.**THE UNDERSIGNED ARE PREPARED TO  
contract for the delivery of English Railroad Iron  
of favorite brands, during the Spring. They also re-  
ceive orders for the importation of Pig, Bar, Sheet, etc.  
Iron.

THOMAS B. SANDS &amp; CO.,

22 South William street,

February 3, 1849.

New York.

**Iron Store.**THE Subscribers, having the selling agency of the  
following named Rolling Mills, viz: Norristown,  
Rough and Ready, Kensington, Triadelphia, Potts-  
grove and Thorndale, can supply Railroad Companies,  
Merchants and others, at the wholesale mill prices for  
bars of all sizes, sheets cut to order as large as 58 in.  
diameter; Railroad Iron, domestic and foreign; Loco-  
motive tire welded to given size; Chairs and Spikes;  
Iron for shafting, locomotive and general machinery  
purposes; Cast, Shear, Blister and Spring Steel; Bol-  
ter rivets; Copper; Pig iron, etc., etc.

MORRIS, JONES &amp; CO.,

Iron Merchants,

Schuylkill 7th and Market Sts., Philadelphia.

August 16, 1849.

1y33

**Railroad Iron.**THE MOUNT SAVAGE IRON WORKS, AL-  
legany county, Maryland, having recently pas-  
sed into the hands of new proprietors, are now prepar-  
ed, with increased facilities, to execute orders for any  
of the various patterns of Railroad Iron. Communi-  
cations addressed to either of the subscribers will have  
prompt attention. J. F. WINSLOW, President

Troy, N. Y.

ERASTUS CORNING, Albany.

WARREN DELANO, Jr., N. Y.

JOHN M. FORBES, Boston.

ENOCH PRATT, Baltimore, Md.

November 6, 1848.

**Railroad Iron.**THE SUBSCRIBERS ARE PREPARED TO  
take orders for Railroad Iron to be made at their  
Phoenix Iron Works, situated on the Schuylkill Riv-  
er, near this city, and at their Safe Harbor Iron Works,  
situated in Lancaster County, on the Susquehanna  
river; which two establishments are now turning out  
upwards of 1800 tons of finished rails per month.Companies desirous of contracting will be promptly  
supplied with rails of any required pattern, and of the  
very best quality.

REEVES, BUCK &amp; CO.,

45 North Water St., Philadelphia.

March 15, 1849.

**Monument Foundry.**

**A. & W. DENMEAD & SON,**  
Corner of North and Monument Sts.,—Baltimore,  
HAVING THEIR

**IRON FOUNDRY AND MACHINE SHOP**

In complete operation, are prepared to execute faithfully and promptly, orders for Locomotive or Stationary Steam Engines, Woolen, Cotton, Flour, Rice, Sugar Grist, or Saw Mills, Slide, Hand or Chuck Lathes, Machinery for cutting all kinds of Gearing, Hydraulic, Tobacco and other Presses, Car and Locomotive patent Ring Wheels, warranted, Bridge and Mill Castings of every description, Gas and Water Pipes of all sizes, warranted, Railroad Wheels with best fagotted axle, furnished and fitted up for use, complete. Being provided with Heavy Lathes for Boring and Turning Screws, Cylinders, etc., we can furnish them of any pitch, length or pattern. Old Machinery Renewed or Repaired—and Estimates for Work in any part of the United States furnished at short notice.  
June 8, 1849.

**Iron Wire.**

**REFINED IRON WIRE OF ALL KINDS,**  
Card, Reed, Cotton-flyer, Annealed, Broom, Buckle, and Spring Wire. Also all kinds of Round, Flat or Oval Wire, best adapted to various machine purposes, annealed and tempered, straightened and cut any length, manufactured and sold by  
**ICHABOD WASHBURN.**  
Worcester, Mass., May 25, 1849.

**American and Foreign Iron.**

**FOR SALE,**  
300 Tons A 1, Iron Dale Foundry Iron.  
100 " 1, " " "  
100 " 2, " " "  
100 " " Forge "  
400 " Wilkesbarre " "  
100 " "Roaring Run" Foundry Iron.  
300 " Fort " "  
50 " Catocin " "  
250 " Chikiswalungo " "  
50 " "Columbia" "chilling" iron, a very superior article for car wheels.  
75 " "Columbia" refined boiler blooms.  
30 " 1 x 1/2 Slit iron.  
50 " Best Penna. boiler iron.  
50 " "Puddled" "  
50 " Bagnall & Sons refined bar iron.  
50 " Common bar iron.  
Locomotive and other boiler iron furnished to order.  
**GOODHUE & CO.,**  
New York. 64 South street

**American Pig, Bloom and Boiler Iron.**

**HENRY THOMPSON & SON,**  
No 57 South Gay St., Baltimore, Md.,  
Offer for sale. Hot Blast Charcoal Pig Iron made at the Catocin (Maryland), and Taylor (Virginia), Furnaces; Cold Blast Charcoal Pig Iron from the Cloverdale and Calamba, Va., Furnaces, suitable for Wheels or Machinery requiring extra strength; also Boiler and Flue Iron from the mills of Edge & Hilles in Delaware, and best quality Boiler Blooms made from Cold Blast Pig Iron at the Shevandoah Works, Va. The productions of the above establishments can always be had at the lowest market price for approved paper. American Pig Iron of other brands, and Rolled and Hammered Bar Iron furnished at lowest prices. Agents for Watson's Perth Amboy Fire Bricks, and Rich & Cos. New York Salamander Iron Chests.  
Baltimore, June 14, 1849. 6 mos

**Wheel, Forge and Foundry Iron.**

**LOCUST GROVE** Wheel Iron of great strength and superior chilling property.  
Balt. Charcoal Forge Iron, from Patuxent, Curtis Creek and Gunpowder furnaces.  
Elkridge Foundry Iron, of superior strength and softness. Anthracite and Charcoal Iron from Pennsylvania and Virginia. Gas and Water Pipes, Lamp Posts from Elkridge furnace.  
**LEMMON & GLENN,**  
6m9 62 Buchanan's Wharf, Baltimore.

**Iron.**

**THE SUBSCRIBERS** having resumed the agency of the New-Jersey Iron Company, are prepared to execute orders for the different kinds and sizes of Iron usually made at the works of the company, and offer for sale on advantageous terms.—  
150 tons No. 1 Boonton Foundry Pig Iron.  
100 " No. 2 do. do. do.  
300 " Nos. 2 & 3 Forge do. do.  
100 " No. 2 Glendon do. do.  
140 " Nos. 2 & 3 Lehigh Crane do do.  
100 " No. 1 Pompton Charcoal do.  
100 " New-Jersey Blooms  
50 " New-Jersey Fagotted Iron, for shafts  
Best Bars, 1 to 4 inch by 1 to 1 inch thick.  
Do do Rounds and Squares, 1 to 3 inch.  
Rounds and Squares, 3-16 to 1 inch.  
Half Rounds, 1 to 1 in. Ovals & Half Ovals 1 to 1 1/2 in.  
Bands, 1 1/2 to 4 inch. Hoops, 1 to 2 inch.  
Trunk Hoops, 1 to 1 1/2 in. Horse Shoe & Nut Iron.  
Nail Plates. Railroad Spikes.  
**DUDLEY B. FULLER & Co.,** 139 Greenwich-st. and 85 Broad-st.

**WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.**

The subscribers have on hand, and are constantly receiving from their manufactory,  
**PARK WORKS, SHEFFIELD,**  
Double Refined Cast Steel—square, flat and octagon. Best warranted Cast Steel—square, flat and octagon. Best double and single Shear Steel—warranted. Machinery Steel—round.  
Best and 2d gy. Sheet Steel—for saws and other purposes.  
German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.  
Genuine "Sykes," L Blister Steel.  
Best English Blister Steel, etc., etc., etc.  
All of which are offered for sale on the most favorable terms by  
**WM. JESSOP & SONS,**  
91 John street, New York.  
Also by their Agents—  
Curtis & Hand, 47 Commerce street, Philadelphia.  
Alex'r Fullerton & Co., 119 Milk street, Boston.  
Stickney & Beatty, South Charles street, Baltimore.  
May 6, 1848.

**JOHNSON, CAMMELL & Co's Celebrated Cast Steel,**

**AND**  
**ENGINEERING AND MACHINE FILES,**  
which for quality and adaptation to mechanical uses, have been proved superior to any in the United States. Every description of square, octagon, flat and round cast steel, sheet, shovel and railway spring steel, best double and single shear steel, German steel, flat and square, goat stamps, etc. Saw and file steel, and steel to order for any purposes, manufactured at their Cyclops Steel Works Sheffield.  
**JOHNSON, CAMMELL & CO.,**  
100 William St., New York.  
November 23 1849.

**Railroad Iron.**

**OF ANY PATTERN AND WEIGHT,**  
Of a Favorite Brand,  
And deliverable in Bond, or Duty paid, at any Port of the U. S., contracted for on favorable terms, by  
**CHARLES ILLIUS,**  
20 Beaver St., New York.

Pig and other Iron also contracted for. Sole Agent for "Baxter's Machine and Burning Oil"—particularly adapted for "Railroads" and other Machinery—Preferred to Sperm by the many now using it, and 25 per cent. cheaper.

**CUT NAILS OF BEST QUALITY, BAR IRON**  
(including Flat Rails) manufactured and for sale by  
**FISHER, MORGAN & CO.,**  
75 N. Water St., Philadelphia.

**Ogden & Martin's ROSENDALE CEMENT.**

**WE** are prepared to enter into arrangements for supplying our Cement for public works or other purposes. We warrant the cement equal in every respect to any manufactured in this country. It attains a great degree of hardness, sets immediately under water, and is a superior article for masonry coming in contact with water, or requiring great strength.  
For sale in tight barrels, well papered, at their office by  
**OGDEN & MARTIN,** 104 Wall st.  
February 16, 1850. ly\*  
The above cement is used in most of the fortifications building by government.

**To Steam Engine Builders.**

**THE** Undersigned offer for sale, at less than half its cost, the following new machinery, calculated for an engine of 62 inches cylinder and 10 feet stroke, viz.  
2 Wrought Iron Cranks, 60 inches from centre to centre.  
1 Do. do. Connecting Rod Strap.  
2 Do. do. Crank Pins.  
1 Eccentric Strap.  
1 Diagonal Link with Brasses.  
1 Cast Iron Lever Beam (forked).  
The above machinery was made at the West Point Foundry for the U. S. Steamer Missouri, without regard to expense, is all finished complete for putting together, and has never been used. Drawings of the cranks can be seen on application to  
**HENRY THOMPSON & SON,**  
No. 57 South Gay St., Baltimore, Md.  
Sept. 12, 1849.

**P. H. Griffin,**

Corner of Steuben and James Sts. Albany, N.Y.  
**CONTINUES** to manufacture copper flues for locomotive boilers, brewers' coppers, stills, tanner heaters, etc. Copper work in general, at the shortest notice. He has constantly on hand brass cocks, brass valves, copper pumps of every variety.  
Orders promptly attended to. ly14

**To Railroad Companies.**

**FOR SALE**—A Second-hand Locomotive Engine and Tender, of about 10 tons weight, in good order, and warranted to perform well. Any company wanting a cheap engine for a passenger or light burden train, will rarely meet with an opportunity so favorable as the present. The engine and tender are in perfect running order, and will be tested to the satisfaction of any one wishing to purchase. Price \$1,500.  
Address  
**J. B. MOORHEAD,**  
Frazer P.O., Chester county, Pa.  
P.S.—The Engine can be seen by calling on H. Osmond & Co., Car-builders, Broad st., Philadelphia.  
September 6, 1849.

**India-rubber for Railroad Cos.**

**RUBBER SPRINGS**—Bearing and Buffer—Fuller's Patent—Hose from 1 to 12 inches diameter. Suction Hose. Steam Packing—from 1-16 to 2 in. thick. Rubber and Gutta Percha Bands. These articles are all warranted to give satisfaction, made under Tyler & Helm's patent, issued January, 1849.—No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.  
**HORACE H. DAY,**  
Warehouse 23 Courtlandt street.  
New York, May 21, 1849.

**To Railroad Companies and Contractors.**

**FOR SALE**—Two Locomotive Engines and Tenders, at present in use on the Beaver Meadow Railroad, being too light for their coal trains, but well calculated for either gravel or light passenger trains.  
They weigh, in running order, about 8 tons each—having one pair of driving wheels 4 feet diameter, 4 truck wheels 30 inches diameter, with cylinders 10 in. diameter, and 18 inches stroke of piston. Tenders on 4 wheels. Address  
**JAMES ROWLAND,**  
Prest. Beaver Meadow Railroad & Coal Co., Philadelphia.  
or, **L. CHAMBERLAIN,** Sec'y,  
at Beaver Meadow, Pa.  
May 19, 1849. 20tf

**Rosendale Cement.**

**THE NEWARK AND ROSENDALE LIME**  
**TAND CEMENT CO.** are now manufacturing at their works in NEWARK, N. J., and Ulster county, N. Y., a very superior article of Hydraulic Cement—also Lime Calcine Plaster, etc. Contractors and dealers will find it to their advantage to call or make application before purchasing elsewhere. All communications addressed to the subscriber, at Newark, N. J., will be punctually attended to.  
ly\*15 **HENRY WILDE, Secretary.**



**Fire Brick.**

THE Subscribers have constantly on hand Rafford's Stourbridge, Oak Farms Stourbridge, Lister, Wortley, Red and White Welsh Fire Bricks, common and fancy shapes. Also,

**ROOFING SLATES,**

from the best Welch quarries, and of all sizes. Also,

**COAL,**

of all kinds—Liverpool Orrell and Cannel, Scotch, New Castle, Pictou, Sidney, Cumberland, Virginia, and all kinds of Anthracite coals. Also,

Pig Iron, Salt, etc., etc., for sale at the lowest market price. Apply to

SAMUEL THOMPSON & NEPHEW,  
275 Pearl and 43 Gold Sts., New York.

November, 23, 1849.

**NORRIS' LOCOMOTIVE WORKS,  
SCHENECTADY, N. Y.**

THESE Works are in full operation in Manufacturing to order, Locomotive Steam Engines & Tenders, of the best principle and construction of material, using wrought iron heavy frames with pedestals welded thereto, and all parts of the engine made of the best wrought iron, except cylinders, pumps and boxes—obtaining greater durability, and carrying less weight over the road, than engines constructed of cast iron.

Wrought Iron Tires made any required size, and Tire Bars bent and welded with dispatch. Chilled Wheels for Cars, Trucks and Tenders, made from the toughest iron.

Driving and Tender and Car Wheels fitted to Axles with Brass Boxes and Springs, and Railroad Machinery generally. Manufactured and for sale by

April 11, 1849.

E. S. NORRIS.

**To the Proprietors of Rolling  
Mills and Iron Works.**

THE Undersigned—Proprietors of Townsend's Furnace and Machine Shop, Albany—are extensively engaged in the manufacture of Machinery and fixtures for Iron, and Copper Rolling Mills, and Iron Works. Having paid particular attention to the manufacture of *Rolls* (Rollers), both *chilled* and *dry-sand*, they feel confident that they can execute orders for such castings in a satisfactory manner. And to give assurance of this, they beg leave to refer to the following named persons, proprietors and managers of some of the most extensive rolling mills in the country, viz: Jno. F. Winslow, J. Tuckerman, H. Burden, W. Burt, J. & J. Rogers, Saltus & Co., J. B. Bailey, L. G. B. Cannon, Hawkins & Atwater, etc., etc.

F. & T. TOWNSEND.

Albany, August 18, 1849.

**Passenger Car Linings.**

THE Advertiser continues to make to order the Enamelled Car Linings which have been so highly approved the last three years, and are now exclusively used by all the Northern Railroads. No pains are spared to get out new styles, and adapt them to the tastes of every consumer.

Orders addressed to CHARLES STODDER, No. 75 Kilby street, Boston, will have prompt attention. March 23, 1850. 2m

**CAUTION.**

RAILROAD COMPANIES and others are hereby cautioned against using or vending our improvement for easing the lateral motion as applied on Railroad Cars. Letters Patent having been granted to us in 1841, any party or parties so making or using said improvement without license from us will be proceeded against according to law.

DAVENPORT & BRIDGES.

**Doremus & Nixon,  
IMPORTERS AND FURNISHERS****RAILROAD CAR  
AND COACH TRIMMINGS.**

Plain Garnet Plush. Fig. Garnet Plush (Butterfly pat.  
"Crimson" "Crimson" "Elegant."  
"Scarlet" " " " (Gen. Taylor.

**BROCATELLES.**

Crimson Silk Brocatelles. Gold and Maroon do.  
Gold and Blue " " Brown "  
Silk and Wool " " of every color.

**MOQUETTES.**

Of elegant designs and colors.

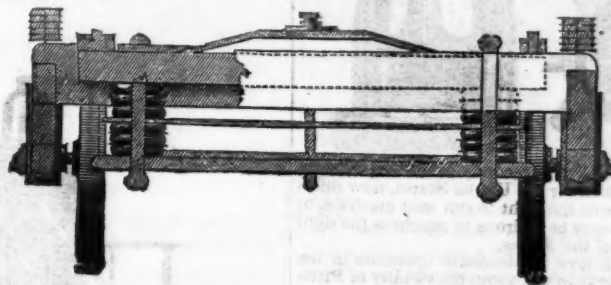
**GERMAN CLOTH FOR CAR LININGS.**

The most beautiful goods ever shown in this country, and the subscribers are the sole agents for the sale of them.

Oil cloths Enamelled with Gold. These goods can be  
" " " Silver. furnished in any  
Do. Silver ground velvet printed. dimensions req'd.

**CURLED HAIR**

Of every description and quality.  
JNO. W. A. STRICKLAND, Agent.  
New York, 1850. 1716

**FULLER'S PATENT  
INDIA RUBBER CAR SPRINGS.**

RAILROAD COMPANIES are cautioned, before purchasing Springs, to examine the actual patents and judge for themselves.

Persons, under the Title of the New England Car Company, seeking fraudulently to invade Fuller's rights have put forth so many statements for the purpose of misleading the public, that an enumeration of some facts is absolutely necessary, for the purpose of putting persons interested upon their guard.

Fuller's patent is for the application of Discs of India-rubber with Metal Plates, for forming Springs for Railway Cars and Carriages—either one disc and two plates, or ten discs and plates, or any other number, are equally covered by the patent. Fuller is not bound to the use of short discs—he may use long discs and plates.

Ray's patent is simply and wholly the forming of air tight rubber cylinders, with hoops or bands round the outside, and the combination of elasticity of India rubber, with the elasticity of atmospheric air confined in the cylinder, and in no part of his patent is he authorized to use the form of spring which he is now fraudulently supplying to Railroad Companies. Such springs are direct and positive infringements of the very letter of Fuller's patent.

Fuller's patent is dated October, 1845, Ray's patent, August, 1848.

The spring patented by Ray never has been put in operation, and never can be made useful for Railroad cars.

A mere experiment, even if made, it is well known does not prove an invention; and it is ridiculous for such parties to hope to mislead the Presidents and Superintendents of Railroad companies, by claiming the invention because Ray alleges he made an experiment—which Fuller had made before him—had actually brought into working order, and obtained a patent for—and this too before Mr. Ray states he made his experiment—and that experiment not claimed to have been applied to a car or carriage.

Besides, the invention could not have been developed until India rubber, properly Vulcanised, could be made of a sufficient thickness. In the United States the art of vulcanising rubber by steam heat, (by which

means only can a body of rubber having any considerable thickness be vulcanised,) was not introduced until after the grant by the American government of the patent for springs to Fuller—whereas the process of vulcanising rubber by steam heat was invented in England about three years previously, and was used by Fuller there. This fact refutes entirely the claim of invention put forth by Mr. Ray, and proves the impossibility of his pretensions being true.

Fuller was the first and only inventor of the spring. A Mr. Dorr, whose connection with Mr. Goodyear is well known in this country, applied in England to Mr. Fuller, after he had published and patented his invention, and introduced another party for the purpose of obtaining the agency for the United States. They were furnished with a complete set of drawings and models, and with instructions to make arrangements for the supply of material of American manufacture—from that hour to the present not a single communication has been received from them. Some of these identical models have been traced into the hands of parties now seeking to invade Fuller's rights, and who have exhibited them as specimens of their own invention.

After this, the conveyance was made by Goodyear to certain parties here for the use for railroad springs of what he calls his Metallic rubber. Comment is unnecessary.

There are 5 or 6 different processes for the manufacture of vulcanised rubber, patented by as many different parties, some here, some in England, either of which would probably make good springs.

A large and powerful company has been organised under Ray's patent, the particulars of which shall be given hereafter.

An action has been commenced against three railroad companies for infringement; and all other parties will assuredly be prosecuted if they continue farther to infringe upon Fuller's patent.

W. C. FULLER,

The only persons authorised to supply the Springs are G. M. KNEVITT, 38 Broadway, N. York, General Agent for the U. S.; and JAS. LEE & Co., 18 India Wharf, Boston. JOHN THORNLEY, Chestnut st., Philad.

**Patent India Rubber Steam  
Packing.**

THIS article, made by the subscriber, who alone is authorised to make it, is warranted to stand as high a degree of heat as any that has been or can be made by any person—and is the article which has made the reputation of India Rubber Steam Packing and the demand therefor. A large assortment of all thicknesses requisite for any description of engines, steam pipes, valves, etc., constantly on hand and for sale by the manufacturer and patentee, who will give every information regarding its properties, mode of use, etc., at the warehouse. JOHN GREACHEN, JR., 98 Broadway, opposite Trinity Church. New York, October, 1849.

**Ibbotson, Brothers & Co's  
CELEBRATED CAST STEEL**

AND Best Cast Steel Royal Improved Files, well known as better adapted for Engineers' and Machinists' purposes than any now in use in the United States.

Every description of Square, Octagon, Flat and Round Cast Steel, Sheet, Shovel and Railway Spring Steel, etc., and Steel to order for any purposes—manufactured at their works in Sheffield—and universally known by the old stamp "Globe."

HENRY J. IBBOTSON, Agent,  
218 Pearl st., New York.

February 25, 1850.

FAIRBANKS' RAILROAD SCALES.—THE subscribers are prepared to construct at short notice, Railroad and Depot Scales, of any desired length and capacity. Their long experience as manufacturers—their improvements in the construction of the various modifications, having reference to strength, durability, retention of adjustment, accuracy of weight and dispatch in weighing—and the long and severe tests to which their scales have been subjected—combine to ensure for these scales the universal confidence of the public.

No other scales are so extensively used upon railroads, either in the United States or Great Britain;—and the managers refer with confidence to the following in the United States.

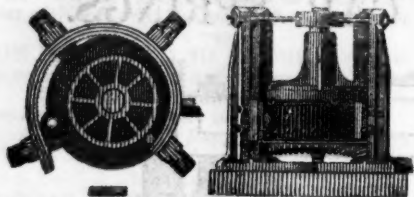
Eastern Railroad.	Boston & Maine Railroad.
Providence Railroad.	Providence and Wor. Road.
Western Railroad.	Concord Railroad.
Old Colony Railroad.	Fitchburg Railroad.
Schenectady Railroad.	Syracuse and Utica Road.
Balt. and Ohio Railroad.	Baltimore and Susq. Road.
Phila. & Reading Road.	Schuylkill Valley Road.
Central (Ga.) Railroad.	Macon and Western Road.
	New York and Erie Railroad.

And other principal Railroads in the Western, Middle and Southern States.

E. & F. FAIRBANKS & CO.  
St. Johnsbury, Vt.  
Agents, FAIRBANKS & Co., 81 Water St., N. York.  
A. B. NORRIS, 196 Market St. Philadelphia.  
April 22, 1849. 1717

## MACHINERY.

## Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phoenixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has given universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shingler's, or hammerman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll sounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y.

P. A. BURDEN.

## Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery for making Spikes, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, Agent,  
Troy Iron and Nail Factory, Troy, N. Y.

## RAILROAD WHEELS.

CHILLED RAILROAD WHEELS.—THE UNDERSIGNED are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

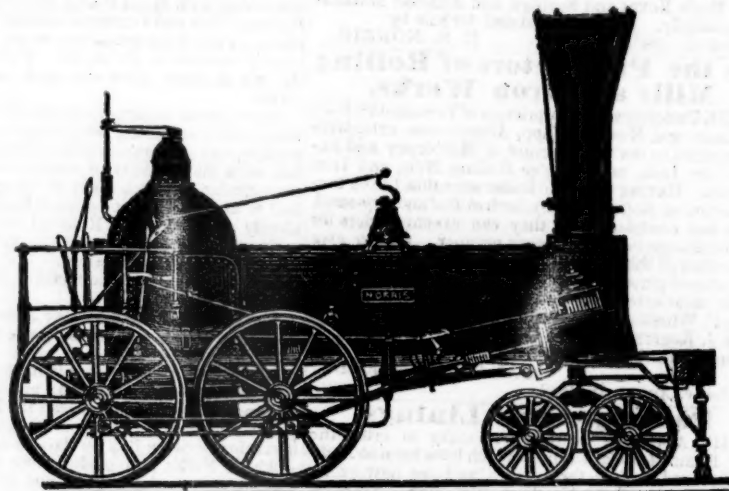
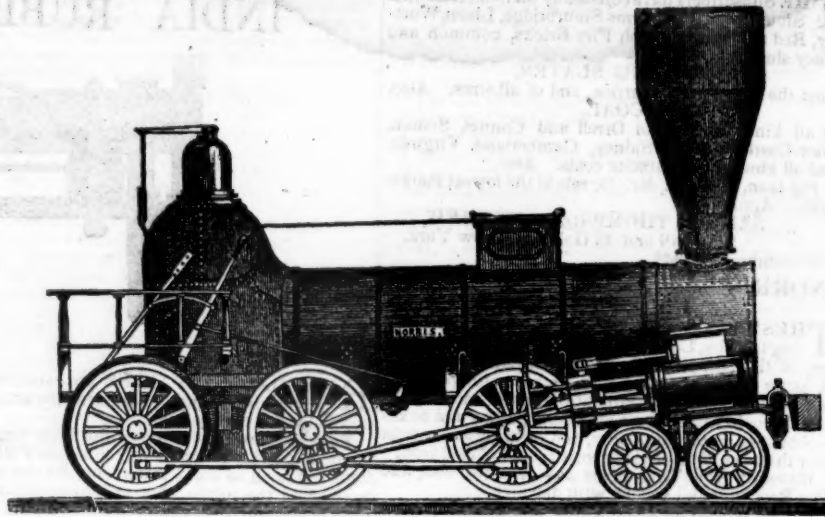
A. WHITNEY & SON,  
Willow St., below 13th,  
Philadelphia, Pa.

CHILLED RAILROAD WHEELS.—THE UNDERSIGNED, the Original Inventor of the Plate Wheel with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.

A. TIERS,  
Point Pleasant Foundry.

He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country.

Kensington, Philadelphia Co., }  
March 12, 1868. }

NORRIS' LOCOMOTIVE WORKS.  
BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,

THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size. Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tyres are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This Cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by

JOHN W. LAWRENCE,  
142 Front-street, New York.

Orders for the above will be received and promptly attended to at this office.

32 ly.

## PATENT MACHINE MADE HORSE-SHOES.

The Troy Iron and Nail Factory have always on hand a general assortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

P. A. BURDEN, Agent,  
Troy Iron and Nail Factory, Troy, N. Y.

COLUMBUS, OHIO,  
Railroad Car Manufactory.  
RIDGWAYS & KIMBALL,

HAVE established at this central point, the manufacture of Passenger, Freight, Gravel and Hand Cars for Railroads, and assure all Western Railroad Companies that it will be their constant aim to procure the best materials and workmen, and to turn out the best kind of work at fair prices. Specimens may be seen on the Columbus and Xenia Railroad. The patronage of Railroad Companies is respectfully solicited.

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## To Inventors and Patentees.

OWEN G. WARREN, ARCHITECT, Has had many years' experience as Agent for obtaining Patents, both in this country and Europe, and will transact such business promptly and reasonably. Persons at a distance can have their business done by correspondence—without the necessity of visiting this city or Washington. Office No. 94 Merchants Exchange, Wall st., corner of Hanover st., up stairs.

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application



**Mr. Hale:**—"The New England Car Co., having been engaged for the last six months in introducing the Vulcanized India-rubber Car Springs upon the different railroads in this and other states, and having in particular introduced it upon the Boston and Worcester railroad with perfect success, were much gratified to find, by your paper of this morning, that the article had given satisfaction to the president of that corporation, and the terms of just commendation in which you were pleased to speak of it. But their gratification was scarcely equalled by their surprise, when, or arriving at the close of your paragraph, they found the results of all their labors attributed to a foreign source, with which the New England Car Co. has no connection. The material used on the Boston and Worcester railroad, and all the other railroads in this country, where any preparation of India-rubber has been successfully applied, is entirely an American invention, patented in the year 1844 to Charles Good-year, of New Haven, Conn., and the application of it to this purpose and the form in which it is applied are the invention of F. M. Ray of New York. The only material now in use, and so far as has yet appeared, the only preparation of India rubber capable of answering the purpose, has been furnished under these patents by the New England Car Company, manufactured under the immediate inspection of their own agent. If any other should be produced, the right to use it would depend upon the question of its interference with Mr. Goodyear's patent. The New England Car Company have their place of business in this city at No. 99 State street, and are prepared to answer all orders for the Vulcanized India rubber Car Springs, of the same quality and of the same manufacture as those which they have already placed on your road, and most for the other roads terminating in this city."

And yet Mr. Kneivitt is using these experiments made upon the Springs of the Car Company to induce the public to purchase his springs, and is attempting to impose upon them the belief that the springs used were furnished by him! We ask whether such a course is honorable, or entitles his statements to much consideration from the public.

The above Springs are for sale 98 Broadway, New York, and 99 State street, Boston.  
**EDWARD CRANE** Agent, Boston.  
**F. M. RAY**, Agent, New York,  
 Boston, May 8, 1849.

## Ballard's Improved JACK-SCREW.

PATENTED.

**THE ADVANTAGES OF THIS** Screw for Stone Quarries, Railroads, Steam Boiler Builders, and for other purposes are superior to any other similar machine.

The improvement consists in being able to use either end of the screw, as occasion requires.

It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

Many Railroad Companies and Boiler Makers have them in use by whom they are highly recommended.

**JACK SCREWS**, of various sizes, power and price, constantly on hand at the manufactory.

No. 7 Eldridge Street,  
 near Division Street.  
 New York, Jan. 19, 1850.



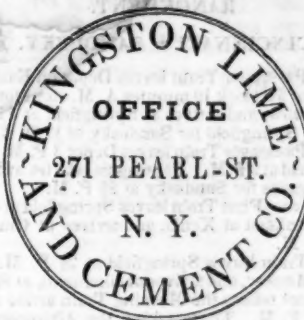
**NICOLL'S PATENT SAFETY SWITCH FOR** Railroad Turnouts. This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable.

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, application to the Subscriber, Inventor and Patentee, **G. A. NICOLLS**, Reading, Pa.

## Hydraulic Cement.



**HYDRAULIC CEMENT, OF BEST QUALITY**, manufactured at their works, for sale in lots to suit purchasers.

Also, Ground Lime, a superior article for Builders.  
**ISAAC FRYER**, Sec'y.  
 January 19, 1850.

## Engine and Car Works, PORTLAND, MAINE.

**THE PORTLAND COMPANY**, Incorporated August 8th, 1846, with a capital of \$250,000, have erected their extensive Works upon the deep water of Portland Harbor, and receive and transport, to and from their works direct, to and from vessels of any class.

They now manufacture to order, and deliver upon the Railroads running in each direction from the city, or on shipboard as wanted, Locomotive, Stationary, or Steam Boat Engines; Passenger, Mail, Freight, Earth and Hand Cars; Railway Frogs, Switches, Chairs and Castings; and every other description of Machinery.

**HORACE FELTON**, Superintendent.

**JAMES C. CHURCHILL**, General Agent and Clerk.

## RAILROADS.

### EASTERN RAILROAD.

#### WINTER ARRANGEMENT.

On and after Monday, October 8, 1849, trains leave Boston daily (Sundays excepted):  
 For Lynn, 7, 8, 10 a.m., 12, 2, 4, 4, 6, p.m.  
 Salem, 7, 8, 10 a.m., 12, 2, 4, 4, 6, p.m.  
 Manchester and Gloucester, 10 a.m., 4 p.m.  
 Newburyport, 7 a.m., 12, 2, 4, p.m.  
 Portsmouth, 7 a.m., 2, 4, p.m.  
 Portland, Me., 7 a.m., 2, p.m.

And for Boston,

From Portland, 8, 10 a.m., 4 p.m.  
 Portsmouth, 7, 10, a.m., 6, p.m.  
 Newburyport, 7, 11, a.m., 3, 7, p.m.  
 Gloucester, 7, a.m., 1, p.m.  
 Manchester, 8 a.m., 2 p.m.  
 Lynn, 7, 8, 9, 10, a.m., 12, 5, 2, 4, p.m.  
 Salem, 7, 8, 9, 10, a.m., 12, 4, 2, 4, p.m.

\*Or on their arrival from the East.  
 Freight trains each way daily. Office 17 Merchants' Row, Boston.  
 Feb. 3. **JOHN KINSMAN**, Superintendent.

### ALBANY AND BUFFALO RAILROADS.

Four Trains daily, Sundays excepted, viz:  
 Leave Albany, 6 a.m., 9 a.m., 2 p.m., 7 p.m.  
 Reach Buffalo, 15 hours, 18 hours, 23 hours, 18 hours.  
 Arrive from Buffalo, 7 p.m., 2 a.m., 12 m., 3, p.m.

Passengers by the Express Train reach Buffalo from New York, and New York from Buffalo, in 24 hours. The Isaac Newton and Oregon connect at Albany with this Train. Baggage cars, with careful baggage masters, run through with all the trains.

For Schenectady, Saratoga Springs & Whitehall, Leave Albany at 7 a.m. and 2 p.m. For Schenectady only at 6, 7 and 9 a.m. and 12, 2 and 7 p.m. For Erie Canal packets at 7 a.m. and 7 p.m. By Plank Road from Schenectady to Saratoga at all hours by stages, etc.

The Eastern Trains leave Albany at 7 a.m. and 3 p.m. The wagons of the company take baggage free between railroads and steamboats at Albany.

**E. FOSTER, Jr.**, Sec'y  
 Albany and Schenectady Railroad Co.  
 Albany, August, 1849.

## BOSTON AND MAINE RAILROAD.

**Winter Arrangement, 1850.**  
**Outward Trains from Boston**  
 For Portland at 7 a.m. and 2, p.m.  
 For Rochester at 7 a.m., 2, p.m.  
 For Great Falls at 7 a.m., 2, 3, p.m.  
 For Haverhill at 7 and 9 a.m., 2, 3, 4, 5, p.m.  
 For Lawrence 7, 7, 9 a.m., 12m. 2, 3, 4, 5, 6, p.m.  
 For Reading 7, 9 a.m., 12m. 2, 3, 4, 5, 6, 7, 9, p.m.  
 For Medford 7, 9 a.m., 12, 2, 5, 6, 9, p.m.  
 The Station in Boston is on Haymarket Square.  
**CHAS. MINOT**, Super't.

January 10, 1850.

## NEW YORK AND HARLEM RAILROAD. NEW ARRANGEMENT.

On and after Wednesday, October 17th, 1849, the Cars will run as follows, (Sundays excepted) until further notice:

Trains will leave the City Hall, New York, for—  
 Harlem and Morrisania at 6, 8, 10, 11, 12 a.m., 2, 3, 4, 5, 6, p.m.  
 New Village, at 8, 10, 12 a.m., 3, 5, 6, p.m.  
 Fordham and Williams' Bridge, at 8, 10, 12 a.m., 2, 3, 4, 5, 6, p.m.  
 Hunt's Bridge, Underhill's and Hart's Corners, at 8, 10 a.m., 3, 5 p.m.  
 Tuckahoe and White Plains, at 8, 10 a.m., 2, 3, 5 p.m.  
 Pleasantville, New Castle, Bedford, Mechanicsville, Purdy's, Croton Falls, and intermediate stations, on signal, 8, 10 a.m., 2, 3, p.m.  
 Brewster's, Townner's, Patterson, Paulding's, South Dover, Dover Furnace, and Dover Plains, 8, 10 a.m., 2, p.m.

**NOTICE**—Passengers are reminded of the great danger of standing upon the platform of the cars, and hereby notified that the practice is contrary to the rules of the Company, and that they do not admit any responsibility for injury sustained by any passenger upon the platforms, in case of accident.

Returning to New York will leave

Harlem and Morrisania at 6 08, 7, 8 37, 9, 10 6, 12 a.m., 1 43, 3 07, 3, 5, 5 47 p.m.  
 New Village, at 5 58, 8 27, 9 56 a.m., 1 33, 2 57, 5 36 p.m.  
 Fordham and William's Bridge at 5, 8 14, 9 43, 10 57 a.m., 1 20, 2 44, 5 24 p.m.  
 Hunt's Bridge at 8 04, 9 33 a.m., 2 34, 5 16 p.m. On signal.  
 Underhill's, at 7 56, 9 23 a.m., 2 26, 5 10 p.m. On signal.  
 Tuckahoe at 7 53, 9 18, 10 40 a.m., 2 23, 5 03 p.m.  
 Hart's Corners at 7 38, 9 03 a.m., 2 08, 4 54 p.m.—On signal.  
 White Plains at 7, 8 55, 10 20 a.m., 2, 4 47 p.m.  
 Davis' Brook at 8 40, 10 11 a.m., On signal. 4 39 p.m. On signal.  
 Unionville, 8 27, 10 11 a.m. On signal. 4 29 p.m.—On signal.  
 Pleasantville at 8 20, 9 56 a.m., 4 24 p.m.  
 Chappaqua, at 8 10, 9 50 a.m. On signal. 4 18 p.m. On signal.  
 New Castle, at 7 56, 9 38 a.m., 4 07 p.m.  
 Bedford at 7 46, 9 32 a.m., 4 02 p.m.  
 Mechanicsville at 7 36, 9 22 a.m., 3 52 p.m.  
 Golden's Bridge, 7 28, 9 17 a.m. On signal, 3 47 p.m. On signal.  
 Purdy's at 7 20, 9 09 a.m., 3 39 p.m.  
 Croton Falls, at 7, 9 04 a.m., 3 34 p.m.  
 Brewster's, at 8 50 a.m., 3 20 p.m.  
 Townner's, at 8 35 a.m., 3 05 p.m.  
 Patterson, at 8 27 a.m., 2 57 p.m.  
 Paulding's, at 8 17 a.m., 2 47 p.m.  
 South Dover, 8 02 a.m., 2 32 p.m.  
 Dover Furnace, 7 55 a.m., 2 25 p.m.  
 Dover Plains, at 7 45 a.m., 2 15 p.m.

The trains for Harlem and Morrisania leaving City Hall at 6, 8, 10, 11, 12, 2, 4 and 6, returning from Morrisania and Harlem at 6 08, 7, 8, 9, 12, 1 43, 3 07, 3, 5 o'clock, will land and receive passengers at 27th, 42d, 51st, 61st, 79th, 86th, 109th, 115th, 125th and 132d streets.

The Dover Plains train from New York at 2, p.m., returning leaving Dover Plains at 7 a.m., will not stop between White Plains and New York, (except at Tuckahoe, Williams' Bridge and Fordham), unless to leave passengers coming from above Croton Falls.

A car will precede each train ten minutes to take up passengers in the city. The last car will not stop, except at Broome st. and 27th street.

Freight Trains leave New York at 1 o'clock p.m.—Returning, leaves Dover Plains at 12 o'clock m.

For Sunday Arrangements, see hand bills.  
**M. SLOAT**, Sup't.

# AMERICAN RAILROAD JOURNAL.

## NEW YORK AND ERIE RAILROAD. CHANGE OF HOURS.

On and after Monday, May 6, 1850, the trains will leave as follows, by steamboat THOMAS POWELL, from the foot of Duane st. daily (Sundays excepted).  
Breakfast and supper on board the boat.

WAY AND MAIL TRAIN.—At 6½ a.m., stopping at all the stations—arriving a Corning and Jefferson about 10½ p.m., and at Buffalo next morning.

NIGHT TRAIN.—at 5 p.m., stopping at all the stations and arriving at Geneva in time to connect with the Express train from Albany, and arrive at Buffalo at 7 p.m., next day.

AN EXPRESS TRAIN.—Will commence running in a few days, of which due notice will be given.

FREIGHT TRAIN.—Leave New York, from foot of Duane st. daily, (Sundays excepted) at 5 p.m. Freight for Geneva, Rochester and Buffalo, forwarded by Express freight train.

CHAS. MINOT, Supt.  
New York, May 2, 1850.

## GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA TO DALTON, 100 MILES.

This Road, in connection with the South Carolina Railroad, and Western and Atlantic Railroad, now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga. 32 miles from Chattanooga, Tenn.

### RATES OF FREIGHT.

	Between Augusta and Dalton, 271 miles.	Between Charleston and Dalton, 408 miles.
1st class Boxes of Hats, Bonnets, and Furniture, per cubic foot	\$0 18	\$0 28
2d class Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs, and Confectionary, per 100 lbs.	1 00	1 50
3d class Sugar, Coffee, Liquor, Bagging, Rope, Cotton, Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow ware, Castings, Crockery, etc.	0 60	0 85
4th class Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.	0 40	0 65
Cotton, per 100 lbs.	0 45	0 70
Molasses per hogshead	8 50	13 50
" " barrel	2 50	4 25
Salt per bushel	0 18	
Salt per Liverpool sack	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Company will be forwarded free of commissions. Freight payable at Dalton.  
F. C. ARMS,  
44½ly Sup't of Transportation.

## To Miners and Mining Companies.

THE undersigned would respectfully call the attention of those persons engaged in mineral operations on Lake Superior to the following list of articles which will be sold on accommodating terms, viz:

- 600 bbls. Corn fed No. 1 Mess Pork.
- 500 " Stall fed Mess Beef.
- 25,000 lbs. "Sugar cured canvassed" Hams.
- 2,000 " Dried Beef.
- 60,000 " "Kiln dried" Corn Meal.
- 500 bush. White "Field" Beans.
- 300 " Canada" Peas.
- 500 " Dried Apples.
- 100 bbls. and half bbls. "cucumber" Pickles.
- 50 " Sour Kroust.
- 30 bush. Onions.
- 1,000 Beefs' Tongues Smoked and in Pickle.
- 10,000 lbs. " Mould" Candles.
- 10,000 " "Hard" Soap.

Also, a full and large supply of all articles that may be required by Mining Companies and those connected with them.

C. A. TROWBRIDGE,  
127 Jefferson Avenue, Detroit, Michigan.

## LITTLE MIAMI RAILROAD.—SUMMER ARRANGEMENT.

### CINCINNATI & SANDUSKY.

FIRST Passenger Train leaves Depot on East Front street, at 5 o'clock 10 minutes A. M. stops for breakfast at Morrow, and arrives at Springfield at 11 10 A. M. Leaves Springfield for Sandusky at 11 50 A. M.

Second Passenger Train leaves Depot 3 P. M. arrives at Springfield at 9 P. M. Passengers take tea at Springfield, and leaves for Sandusky at 9½ P. M.

RETURNING.—First Train leaves Springfield at 4 A. M. Stop for breakfast at Xenia, and arrives at Cincinnati at 10 15 A. M.

Second Train leaves Springfield at 2½ P. M. Stop for tea at Morrow, and arrives at Cincinnati, at 8½ P. M.

Passengers taking the Morning Train arrive at Sandusky at 9 P. M. Those taking the Afternoon Train arrive at 7½ A. M. next morning, and proceed directly on in the boats.

Passengers for Columbus, Zanesville, Wheeling, and intermediate towns, should take the 5, 10 A. M. Train. The Ohio Stage Company are running the following Lines in connection with the Trains:

A Daily Daylight Line to Columbus from Springfield in connection with the Morning Train from Cincinnati. Also, Daily Lines to Columbus, from Xenia and Springfield, connecting with the 3 o'clock, pm. Train from Cincinnati.

Fare from Cincinnati to Xenia	\$1 90
Do do Springfield	2 50
Do do Sandusky City	6 50
Do do Buffalo	10 00
Do do Columbus	4 50

For other information and through tickets, apply at the Ticket Office on Broadway, near Front-st., Cincinnati.

W. H. CLEMENT, Superintendent.

The Company will not be responsible for Baggage exceeding 50 dollars in value, unless the same is returned to the Conductors or Agent, and freight paid at the rate of a passage for every 500 dollars in value above that amount.

## PHILADELPHIA, WILMINGTON, & BALTIMORE RAILROAD.

### Summer Arrangement.

April 1st, 1849.—Fare \$3.

Leave Philadelphia 8½ am., and 10 pm.

Leave Baltimore 9 am., and 8 pm.

Sunday—Leave Philadelphia at 10 pm.

Baltimore at 8 pm.

Trains stop at way stations.

Charleston, S. C.

Through tickets Philadelphia to Charleston, \$20.

Pittsburg and Wheeling.

Through ticket, Philadelphia to Pittsburg, \$12.

Wheeling, 13.

Through tickets sold at Philadelphia office only.

Wilmington Accommodation.

Leave Philadelphia at 12 m. 4 and 7 pm.

Leave Wilmington at 7½ am., 4½ and 7 pm.

Newcastle Line.

Leave Philadelphia at 2½ pm.—Baltimore at 1½ pm.

Fare \$3.—Second class, \$2.

N.B.—Extra baggage charged for.

I. R. TRIMBLE, Gen. Supt.

## BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger Trains

run daily, except Sundays, as follows:

Leave Baltimore at 9 am. and 3½ pm.

Arrive at 9 am. and 6½ pm.

Leave York at 5 am. and 3 pm.

Arrive at 12½ pm. & 8 pm.

Leave York for Columbia at 1½ pm. & 8 am.

Leave Columbia for York at 8 am. & 2 pm.

Fare:

Fare to York \$1 50

" Wrightsville 2 00

" Columbia 2 12½

Way points in proportion.

## PITTSBURG, GETTYSBURG, AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg \$9

Or via Lancaster by railroad 10

Through tickets to Harrisburg or Gettysburg 3

In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at 5½ pm.

Returning, leaves Owning's Mills at 7 am.

D. C. H. BORDLEY, Supt.

Ticket Office, 63 North st.

## PHILADELPHIA & READING RAILROAD.

Passenger Train Arrangement for 1848.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock am.

The Train from Philadelphia arrives at Reading at 12 18 m.

The Train from Pottsville arrives at Reading at 10 43 am.

Fares. Miles. No. 1. No. 2  
Between Phila. and Pottsville, 92 \$3.50 and \$3.00  
" " Reading 58 2.25 and 1.90  
" Pottsville 34 1.40 and 1.20

Five minutes allowed at Reading, and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

8ft.

## BALTIMORE AND OHIO RAILROAD AND WASHINGTON BRANCH.

On and after January 1, 1850, Passenger Trains will run as follows:

Leave Baltimore for Ellicott's Mills, Frederick, Harper's Ferry, Martinsburg, Hancock and Cumberland, every morning at 7½ o'clock. This line carries the Great Mail, and connects with Post Coaches at Cumberland, for Wheeling and Pittsburg, over the National Road. Also with the Winchester Trains, at Harper's Ferry. N.B.—Passengers for Pittsburg take the steamers of the Monongahela slack water navigation at Brownsville, only 76 miles from Cumberland.

Leave Baltimore for Ellicott's Mills, Frederick and Harper's Ferry, daily, except Sunday, at 4½ p.m.

Leave Baltimore for Washington City, daily, at 6 a.m. and 5 p.m.—daily, except Sunday, at 9 a.m. The early train connects with the Great Southern Line, via Fredericksburg and Richmond, to Charleston.

Leave Cumberland for Baltimore, etc., at 8½ a.m., daily, connecting with the train from Winchester at Harper's Ferry—with the Evening Train to Washington City, at the Relay House—and with the Evening Train to Philadelphia, at Baltimore. Time for arriving at Baltimore, 5½ p.m.

Leave Harper's Ferry for Baltimore, daily, except Sunday, at 7½ a.m.—taking in Passengers who leave Frederick at 8½ a.m.

Leave Washington for Baltimore, daily, at 6 a.m. & 5½ p.m., and daily, except Sunday, at 9½ a.m. The early train connects at the Relay House with the morning line to Cumberland and the West, and at Baltimore with the day line to Philadelphia and New York.

Through tickets are sold at Philadelphia and Baltimore for Pittsburg and Wheeling, and at Philadelphia and New York for Charleston, S. C., at the following RATES OF FARE.

To Pittsburg. Wheeling. Charles-  
In winter. Summer. Win. Sum. ton.  
From Philadelphia, \$13 \$12 \$14 \$13 \$20

" Baltimore, 11 10 12 11

" New York, 20

Passengers leaving New York not later than the afternoon line via Newark, etc., reach Baltimore in season to take the next morning's lines to the South and West.

Passengers leaving Cumberland in the morning and Washington in the evening lines, reach Baltimore in season to proceed to Philadelphia by the evening train at 8 p.m.—so as to reach New York before noon the next day.

An Emigrant line by burthen cars, leaves Baltimore every morning, except Sundays, at 4 o'clock—connecting with a line of the previous day from N. York—and at Cumberland with a wagon line to Pittsburg or Brownsville and Wheeling. Fare by this line:

From New York to Pittsburg, \$3 00

" Philadelphia 6 50

" Baltimore 5 00

By order, J. T. ENGLAND, Agent.

## SOUTH CAROLINA RAILROAD.—A PASSENGER TRAIN runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculum Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily \$26 50

Fare through from Charleston to Huntsville, 22 00

Decatur and Tusculum 3

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic Railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr., Agent.

## L.

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# LAKE SUPERIOR LINE. Cleveland and Detroit,

TO  
SAULT STE. MARIE, CARP RIVER, COPPER  
HARBOR, EAGLE RIVER, ISLE ROYAL,  
ONTONAGON AND LA POINT.

The Proprietors of this line having added largely to their facilities for transportation on this route, will be prepared to ship Goods to any part of Lake Superior during the coming season, and contract for the delivery of Copper Ore to either Boston, New York, or Pittsburg, being connected with the Troy and Western Line, from Detroit to New York, and a Daily line of Canal Boats

## FROM CLEVELAND TO PITTSBURG.

### Lakes Huron and Erie.

For this portion of the route, the Proprietors are fitting up a large Boat, with a powerful low pressure engine, and a spacious upper cabin, with state rooms, to take the place of the Franklin, which will leave CLEVELAND every Monday Evening at 7 o'clock, and DETROIT every Tuesday Afternoon at 2 o'clock, going to MACKINAW and the BRUCE MINES, and arriving at SAULT STE. MARIE on Thursday morning. The Franklin will leave Detroit every Friday for Mackinaw and Sault Ste. Marie, via the Bruce Mines. For the transportation of heavy masses of Copper, a Propeller will make trips as occasion may require.

### Lake Superior.

Mr. McKnight, one of the Proprietors, is constructing a Wharf to the Channel Bank, at the head of the Portage, which will enable them to load their Propellers, NAPOLEON AND INDEPENDENCE, with but 24 hours' detention at Sault Ste. Marie. One of the Propellers will leave every Friday, making a trip through the Lake, touching at Carp River, Ontonagon and Isle Royal.

The great expense incurred in building wharves to facilitate business, it is hoped, will entitle the Proprietors of this Line to Patronage. Goods shipped by either G. WILLIAMS & CO., or S. P. BRADY, Agents, Detroit, will be receipted through to their destination on Lake Superior. Letters addressed to S. McKnight, Detroit, or Sault Ste. Marie, will receive attention. Supplies will be purchased and delivered at any point on Lake Superior, on the best possible terms, and all orders filled with articles of as good quality as the market affords.

### Canada Line.

To facilitate the forwarding of Goods for the Canada Companies, a connection has been made with PARK & CO., managing owners of the Propeller Earl Cathcart, forming a direct line from Montreal to the Bruce Mines and Sault Ste. Marie. Goods sent by this line, care of PARK & CO., Amherstburg, or CHAS. HUNT, Esq., Windsor, will be immediately forwarded, and at prices decidedly to the advantage of parties in Toronto or other Canadian Ports.

S. McKnight,  
P. R. LIVINGSTON,  
J. B. BARBEAU.

January, 1850.

### AGENTS.

G. Williams & Co., } Detroit.  
S. P. Brady,  
P. L. Sternberg & Co., Buffalo.  
Charles Hunt, Windsor.  
Park & Co., Amherstburg.  
W. A. Otis & Co., } Cleveland.  
Crawford and Chamberlain,  
Rice, Clapp & CO., New York.  
W. M. Gorrie, Toronto.

**MACHINE WORKS OF ROGERS KETCHUM & GROSVENOR, Patterson, N. J.** The undersigned receive orders for the following articles manufactured by them of the most superior description in every particular. Their works being extensive, and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and dispatch.

**Railroad Work.**—Locomotive Steam Engines and Tenders; Driving and other Locomotive Wheels, Axles Springs and Flange Tires; Car Wheels of Cast Iron a variety of patterns and chills; Car Wheels of Cast Iron with wrought tires; Axles of best American refined iron; springs; boxes and bolts for cars.

**Cotton, Wool and Flax Machinery** of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and millwright work generally, hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
Patterson, N. J. or 74 Broadway, New York.

## CENTRAL RAILROAD FROM SAVANNAH TO MACON, (Ga.) 190 1/2 miles.

Passenger Trains leave Savannah and Macon daily at 7 a.m.  
Passenger trains arrive daily at Savannah, 6 15 p.m.  
" " " " Macon, 6 45 p.m.

This road, in connection with the Macon and Western road from Macon to Atlanta, and the Western and Atlantic road from Atlanta to Dalton, now forms a continuous line of 391 1/2 miles in length\* from Savannah to Dalton, Murray county, Ga. and with the Memphis Branch railroad, and Stages connect with the following places:

Tickets from Savannah to Macon,	\$5 75
" " " " Atlanta,	9 50
" " " " Augusta,	6 50
" " " " Columbus,	15 00
" " " " Opelika,	17 00
" " " " Jacksonville, Ala.,	20 00
" " " " Talladega,	"
" " " " Huntsville } Ala.,	22 00
" " " " Decatur,	"
" " " " Tusculumbia, Ala.,	22 50
" " " " Tuscaloosa, Ala.,	"
" " " " Columbus, Miss.,	28 00
" " " " Aberdeen,	"
" " " " Holly Springs,	"
" " " " Nashville, Tenn.,	"
" " " " Murphresboro' }	25 00
" " " " Columbia, do., }	"
" " " " Memphis, do., }	30 00

An extra Passenger Train leaves Savannah on Saturdays, after the arrival of the Steam-ships from New York, for Macon, and connects with the Macon and Western railroad; and on Tuesdays, after the arrival of the Macon and Western cars, an extra Passenger Train leaves Macon to connect with the Steam ships for New York.

Stages for Tallahassee and intermediate places connect with the road at Macon, Mondays, Wednesdays, and Fridays, and with Milledgeville at Gordon daily.

Passengers for Montgomery, Mobile and New Orleans take stage for Opelika from Barnesville through Columbus, a distance of 97 miles, or from Griffin through West Point, a distance of 93 miles.

\* The Western and Atlantic railroad will soon be completed between Dalton and Chattanooga, a distance of 423 1/2 miles from Savannah, of which due notice will be given.

† Head of the West Point and Montgomery railroad, on which the fare to Montgomery is about \$2.

### RATES OF FREIGHT FOR MERCHANDISE GENERALLY, FROM SAVANNAH TO MACON.

Measurement Goods.—Boxes of hats, bonnets, furniture, shoes, saddlery, dry-goods, and other measurement goods, per cubic foot 13 cents.  
Crockery Ware, in crates, boxes or hhds, per cubic foot. 10 "  
Goods by Weight, 1st class.—Boxes of glass, paints, drugs & confectionary, per 100 lbs., 50 "  
2d class—Sugar, coffee, rope, butter, cheese, lard, tobacco, leather, hides, copper, sheet and hoop iron, tin, hard and hollow ware, rice, boxes soap and candles, bagging, and other heavy articles not enumerated below, per 100 lbs., 45 "  
3d class—Flour, bacon, liquors, pork, beef, fish, tallow and beeswax, per 100 lbs., 40 "  
4th class—Mill-gearing, pig and bar iron, grind and millstones, nails, spikes and coal, 100 lb. 30 "  
Barrels of beets, bread, crackers, potatoes, ice, fruit, oysters, onions, and all light bbls, each, 75 "  
Oil and molasses per hhd., (smaller casks in proportion) \$6 00 "  
Salt per sack not exceeding 4 bushels, 50 "  
Goods consigned to Thos. S. Wayne, Forwarding Agent, Savannah, will be forwarded free of commission. WM. M. WADLEY, Supt. Savannah, Ga., February 24, 1850.

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut,  
near Third, Philadelphia.

## GREAT NORTHERN & SOUTHERN MAIL ROUTE.

From New York to Charleston, S. C. daily, via Philadelphia, Baltimore, Washington City, Richmond, Petersburg, Weldon and Wilmington, N. C. Travelers by this route, leaving New York at 4 1/2 p.m., Philadelphia at 10 p.m., and Baltimore at 6 a.m., proceed without delay at any point on the route, arriving at Richmond, Va., in a day, and at Charleston, S. C., in two and half days from New York.

Through tickets from New York to Charleston, \$20 00  
" " " " Baltimore to Richmond, 7 00  
" " " " Petersburg, 7 50

For tickets to Richmond and Petersburg, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Ticket Office, Pratt Street, Baltimore. STOCKTON & FALLS. October, 1849.

## ST. LAWRENCE & ATLANTIC RAILROAD COMPANY.

Notice is hereby given that the Trains run twice per day between Montreal and St. Hyacinth, leaving each terminus alternately, until further notice.

Leaving St. Hyacinth at 7 a.m.  
" " " " 3 p.m.  
Leaving Montreal at 10 a.m.  
" " " " 6 p.m.

THOMAS STEERS, Secretary.

May 31, 1849.

## WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA, GA., TO CHATTANOOGA, TENN. 140 Miles.

### PASSENGER SCHEDULE.

Leave Chattanooga daily, Sundays excepted, at 8 1/2 a.m.  
Arrive at Kingston . . . by 12 m.  
" Dalton . . . by 3 p.m.  
" Chattanooga . . . by 6 "  
Leave Chattanooga daily, Sundays excepted, at 7 a.m.  
Arrive at Dalton . . . by 9 1/2 "  
" Kingston . . . by 12 m.  
" Atlanta . . . by 4 p.m.

The fare is now permanently reduced to three cents per mile for way as well as through Passengers; children and servants two cents per mile.

There are two Railroad routes from Atlanta to the Seaboard, viz: one by the Georgia Railroad to Augusta, and thence to Charleston by the South Carolina Railroad; the other by the Macon and Western Railroad to Macon, and thence to Savannah by the Central Railroad.

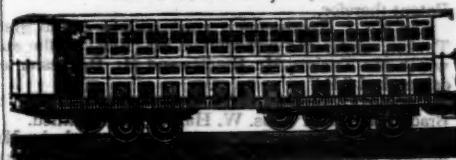
At Kingston, 60 miles north of Atlanta, the Rome Railroad branches off to Rome on the Coosa river, which admits of steamboat navigation as far down as Greensport in Ala. Mail stages are in operation from Rome leading towards Tuscaloosa, Ala., Columbus, Miss., Memphis, Tenn., etc.

At Dalton, 100 miles north of Atlanta, a line of stages branches off to Knoxville, Tenn., which will be superseded by the East Tennessee and Georgia Railroad as rapidly as the same is completed.

At Chattanooga a number of steamboats are in successful operation on the Tennessee river, and from that terminus of the road stages run to Nashville, which will be superseded by the Nashville and Chattanooga Railroad as rapidly as the same is completed.

WM. D. FULLTON, Supt. Transp.  
Transportation W. & A. R. R.,  
Atlanta, March, 1850.

## CAR MANUFACTORY CINCINNATI, OHIO.



KECK & DAVENPORT would respectfully call the attention of Railroad Companies in the West and South to their establishment at Cincinnati. Their facilities for manufacturing are extensive, and the means of transportation to different points speedy and economical. They are prepared to execute to order, on short notice, Eight-Wheeled Passenger Cars of the most superior description. Open and Covered Freight Cars, Four or Eight-Wheel Crank and Lever Hand Cars, Trucks, Wheels and Axles, and Railroad Work generally. Cincinnati, Ohio, Oct. 2, 1848.

# FOWLER M. RAY'S METALLIC INDIA RUBBER CAR SPRINGS.

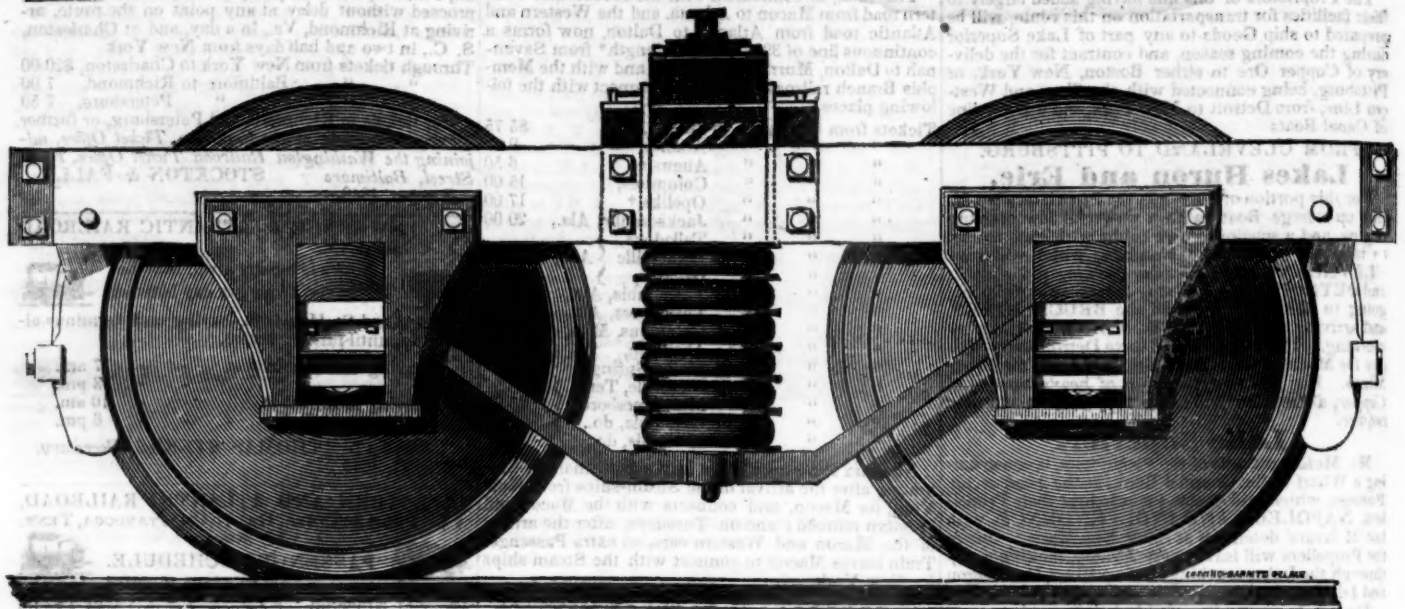


Fig. 1.

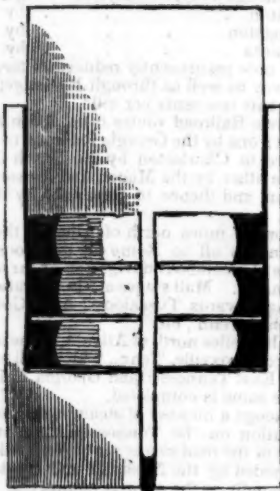


Fig. 2.

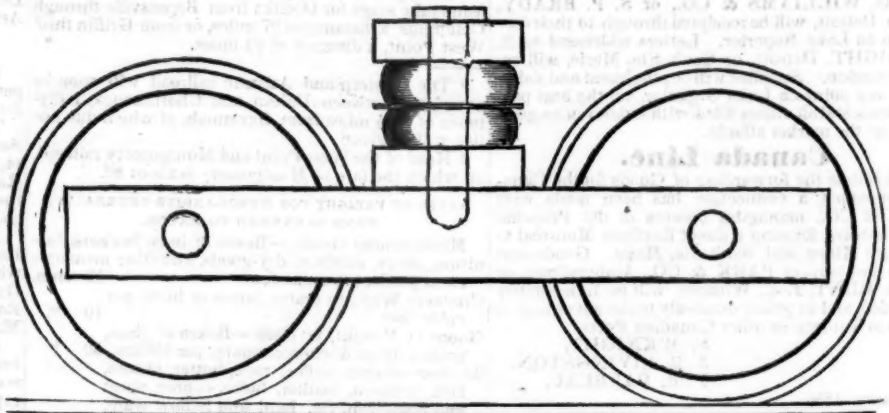


Fig. 3.

So much has been published for the purpose of misleading the public in regard to the inventorship of the India-rubber Railroad Spring, patented in the United States by Mr. W. C. Fuller, that the New England Car Company, proprietors of this invention, have deemed it proper, for the information of Railroad Companies, Car Builders and the public generally, to lay before them the facts upon which they found their claim to this invention, and to a Patent therefor.

Cut No. 1, Represents a cross section of the first model made by Mr. Tucker, under the direction of Mr. Ray, in the summer of 1844, and to which Mr. Tucker, Mr. Bradley and Mr. Bannister testify as being the model marked "B."

Cut No. 2, Represents the model made in 1845, to which Mr. Osgood Bradley and Gen. Thos. W. Harvey have testified.

Cut No. 3, Represents a rough sketch made by Mr. Ray in 1844, which he gave to a man about departing for England to take out some patents, who promised to write to Ray after his arrival in that country—which promise he has probably forgotten.

Mr. W. C. Fuller, of England, patented the above Spring in that country on the 23d October, 1845. He filed his enrollment April 23d, 1846, and on the 22d October, 1846, he took out a patent in the United States under the title, "For Improvement in Railway Carriages," when the improvement consisted in the spring, and not in the carriage.

The reader will perceive by the annexed testimony, that the India-rubber Railroad Car Spring was invented by Mr. Ray about two years previous to the date of Mr. Fuller's enrollment.

The Depositions are omitted for want of room, but will be published in full in the course of a few weeks.

AMERICAN RAILROAD JOURNAL.  
PUBLISHED BY J. H. SCHULTZ & CO.  
ROOM 12, THIRD FLOOR,  
No. 136 Nassau Street,  
NEW YORK.

TERMS.—Five Dollars a year, in advance.

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Professional Cards per annum.....	5 00

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HENRY V. POOR,  
136 NASSAU STREET.